

A CATALOGUE AND
HISTORICAL ACCOUNT OF
THE BANKS SHELL
COLLECTION

GUY L. WILKINS



J Banks

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By GUY. L. WILKINS

CONTENTS

	<i>Pages</i>
1. ORIGIN, SCOPE AND GENERAL DESCRIPTION OF THE COLLECTION . . .	71-74
2. CONTEMPORARY COLLECTIONS AND EFFORTS TO TRACE THEM . . .	74-78
3. HISTORICAL BACKGROUND, FROM THE ARRIVAL OF DR. SOLANDER IN ENGLAND, TO HIS DEATH IN 1782	79-81
4. THE SOLANDER MANUSCRIPTS AND THEIR USE BY SUBSEQUENT AUTHORS	81-88
5. CONTRIBUTORS TO THE COLLECTION	88-89
6. DESCRIPTIVE CATALOGUE :	90-91
Part I. Shells from the localities visited by the <i>Endeavour</i> , 1768- 1771	91-108
Part II. Specimens given to Banks from various localities up to the year 1782	108-116
7. REFERENCES	116-119
8. ACKNOWLEDGMENTS	119

SYNOPSIS

IN the following pages an attempt has been made to describe and catalogue the shell collection of Sir Joseph Banks, presented to the British Museum by the Linnean Society of London in 1863, and untouched since that time. Although comparatively small and incomplete, this unique collection is of historical interest in that it contains much of the original material collected during Captain Cook's first voyage round the world (1768-1771).

This material, together with specimens given to Banks by several of his contemporaries, has recently been identified and correlated with Solander's original manuscript labels and descriptions. The plates include reproductions of a complete drawer of specimens, pages from the Solander manuscripts, accompanied by the original shells described thereon (including three Lectotypes), and a selection of specimens collected during the voyage of the "Endeavour."

I. ORIGIN, SCOPE AND GENERAL DESCRIPTION OF THE COLLECTION

Before the establishment and appreciation of great public museums, it was the custom of most learned societies to endeavour to maintain collections relating to their particular activities, a custom which invariably led to acute embarrassment regarding storage space, efficient custody, and curating. The Linnean Society of London, founded in 1788, was no exception to this general tendency, having accumulated collections stowed away in attics and store-rooms where few ever entered

(Gage, 1938, p. 124), and it was not until 1863, during the presidency of Thomas Bell, that at last the decision was taken to reduce the Society's collections to manageable proportions.

Some collections were consequently distributed to several Natural History societies in the north of England; others, including the Banks shell and insect collections, were sent to the more commodious, but overcrowded quarters of the British Museum (then at Bloomsbury), the remainder of unwanted collections being sold at Stevens' Auction Rooms in November 1863.

Nothing appears to have been recorded since the bare statement of the receipt of the Banksian shells in the Annual Reports of the British Museum, and the *History of the Collections* (1912, p. 19) for the year 1863. It must be presumed that the collection, which admittedly could never have looked inviting, was put aside to be dealt with at some later date, thereby eventually losing its original identity and even becoming known (within living memory), as the "Hanley Collection." According to a list of donations to the collections of the Linnean Society published in Volume XI of the *Transactions* in 1815 (p. 430), "An extensive collection of shells" was presented to the Society by Sir Joseph Banks, but, apart from this brief statement, there is no indication of the size of the collection, whether it comprised one or more cabinets, or the approximate number of specimens. Even the actual date of presentation is uncertain, for in those days a complete volume of the *Transactions* covered a period of several years, so the conclusion is that it was presented at some date between the publication of Volume X of the *Transactions* in 1811, and Volume XI in 1815. William Swainson, writing in 1820 (text to plate 23), the only contemporary author so far known to have actually used the collection, completes the description of a new species of *Mitra* with the following paragraph: "This superb shell is figured from the matchless specimen brought home by that illustrious and lamented patron of science, the late Sir J. Banks, from the Pacific Ocean; it is now, together with his entire collection of shells and insects, in the Museum of the Linnean Society." It has already been stated in the synopsis to this paper, that the collection as it now stands is evidently incomplete; further comparison with Solander's manuscript shows several genera to be entirely missing, and it is suggested that the Banks collection may have been inadvertently divided in 1863, the missing portion perhaps being sold in the auction sale recorded above.

In view of Swainson's statement that Banks's entire collection of shells was in the Linnean Society's museum in 1820, it seems unlikely that any came to the British Museum with the Banksian library and collections in 1827, as was supposed by Edgar Smith (1906, p. 704); certainly no shells that can be identified as Banks' material have been found in the Museum collections, apart from the present series.

The collection fills seven drawers of a small ten-drawer cabinet, each drawer fitted with a sliding wooden dust-cover, a typical feature of the eighteenth-century specimen-cabinet (*vide Portland Sale Catalogue*, 1786, Lot 1728: "A small mahogany shell cabinet, with seven drawers and covers"). The shells are placed in metal containers, made in multiples of four, to fit the drawers, a feature that led to the suspicion of some connexion with the collection of Linné, who is known to have stored his specimens in similar containers (Gage, 1938, p. 128). As the collection was

alleged to have belonged to Sylvanus Hanley (1819-1899), it might easily be supposed that he had either annexed the Linnean containers, when discarding them during his work on Linné's shells in the 1850's (Jackson, 1888, p. 32), or that he had characteristically adopted the same method in his own collection to emulate the immortal Swede.

The possibility that Hanley may have purchased these shells at the sale in 1863 has not been overlooked, but it is inconceivable that such an ardent collector and voluminous author could have left them untouched for over thirty years; moreover, Hanley's main collection is known to have been sold in 1900 to Henry Harvey, a dealer in Houndsditch, only a few type specimens being purchased by the British Museum.

The very early nomenclature appearing on the first few labels examined, however, showed the collection to belong to a much earlier period than Hanley, subsequent comparison with the Solander manuscripts proving beyond any doubt that this was the Banks collection received from the Linnean Society in 1863, and that the metal containers were probably the direct result of Solander's familiarity with the Linnean cabinet during his student days in Sweden. One of the many containers from which the shells were removed by Hanley, has been photographed beside the neater and improved model, which could be used for either deep or shallow specimens simply by reversing, a label flap being provided at the base as well as at the top of the container (fig. 2 and 3). Incidentally, the containers are lined with blue-coated paper, bearing traces of the same *Pro-Patria* watermark that appears on many of Solander's manuscript sheets.

The general condition of the shells is good, except in a few instances where they are rust-marked through contact with the sides of the metal containers; quite a number of specimens still retain the periostracum, and in some the opercula are still in place; conditions which suggest that they were taken alive by Banks and Solander during their collecting trips from the "Endeavour." Like most of Solander's work, the collection was left in an unfinished condition, for although the labels in the containers are numbered consecutively in each drawer, only a proportion have been completed with name and locality; some bear the name only, scrawled roughly on scraps of paper torn from old letters (one such scrap still bears part of a superscription directed to Dr. Solander in London); others have the localities only, in full or abbreviated, while in the drawer containing the Muricidae, many of the labels have only the number of the container in the drawer. It is obvious from the writing on the labels that help was given by another person, for Solander's rough labels, together with fair copies in an as yet unrecognized hand, are sometimes found in the same container.

Solander died in 1782, so that the nomenclature he used is confined to the narrow limits of the Vermes Testacea in the 12th edition of the *Systema Naturae* (vol. 1, pt. 2, 1767); therefore many species in the collection that did not occur in this work were given a name by Solander who marked the label "MSS" and recorded the full description in the manuscript of his projected revision of the *Systema*; a task that was incomplete and unpublished at the time of his sudden death.

This revision was compiled at a time when great strides were being made in all

departments of Natural History, but even so, it is revealing to find on examining Solander's manuscripts that, in the mollusca alone, the genus *Venus* totalled 120 species, compared with the modest thirty-eight described by Linné. The surviving portion of the Banks collection contains 1120 specimens in all (392 species) distributed by Solander among seven Linnean genera, allotted to the seven drawers as follows :

Drawer	Linnean genus	Number of specimens	Recently identified species of various genera
1	Venus (1)	120	47
2	Venus (2)	114	53
3	Ostrea	99	35
4	Mytilus	170	58
5	Conus	144	41
6	{ Cypraea	214	55
	{ Bulla	57	19
7	Murex	202	84
		1120	392

2. CONTEMPORARY COLLECTIONS AND EFFORTS TO TRACE THEM

A striking feature of the surviving Banks shells is the complete absence of any of the large and showy Volutes, Turbos, and Murices so frequently referred to in auction sale catalogues and conchological works of the period ; a feature that suggests that these rather small specimens may have been pocketed quite casually by Banks and Solander on the way across beaches on their botanizing expeditions. After all, botany was one of the former's main reasons for accompanying Cook in the " Endeavour," and it is fairly certain that the collecting of the larger marine shells and corals was left to the officers and crew, who undoubtedly distributed these novelties to the many ardent collectors on returning home, to mutual advantage. The Portland collection was certainly enriched in this way, also that of Thomas Martyn, author of the elaborate *Universal Conchologist*, in the preface to which (vol. 1, p. 26, 1784) he records that it was the purchasing of many new species of shells from several officers " lately returned from the Pacific Ocean ", that induced him to produce this " Laborious, Expensive, and Arduous undertaking ".

While it is possible to trace the vicissitudes of some of the conchological specimens brought to this country from Cook's voyages by Banks and others, in contemporary sale catalogues, i.e., Humphrey (1779) ; Portland (1786) ; Calonne (1797) ; Lever (1806) and Bullock (1819), the present location of the actual specimens (except in a few instances) is extremely difficult, if not impossible, to determine, enquiries based on the most reliable of contemporary records frequently giving completely negative results.

A particular example of this kind of enquiry is a recent attempt to locate the shell collection of the well-known Quaker physician, Dr. John Fothergill (1712-1780), which was said to be second only in importance to the Duchess of Portland's, and certainly contained shells collected during Cook's first voyage by one of Banks's assistants,

Sydney Parkinson, also a Quaker. This gifted young artist died from the appalling fever contracted by so many of the ship's company at Batavia towards the end of 1770, and thus the subsequent ownership of his collections and journals became the subject of bitter controversy between Banks and Sydney's excitable and mentally unbalanced brother Stansfield Parkinson. The whole miserable story of this controversy, during which Fothergill, as a prominent Quaker, was called in to mediate, is told in the preface to Parkinson's *Journal of a Voyage to the South Seas*, first published in 1773, and in a second edition circulated by Fothergill in 1784, after Stansfield's death, with a further preface in which he (Fothergill) sought to dispel the unpleasant and unfounded accusations appearing in the original. The outcome of the good doctor's efforts at mediation was that he purchased Sydney Parkinson's shells for considerably more than they were worth, and these specimens so unhappily acquired must have formed part of the Fothergill collections sold to William Hunter in 1780. (Fox, 1919, pp. 78 and 213.)

Further evidence that the shells were acquired by Hunter is to be found in Martyn's *Universal Conchologist* (p. 12, para. 2), where he remarks that "The cabinet of the late Dr. Hunter, since the addition of that great collection formerly in the possession of Dr. Fothergill, is truly magnificent". The Hunterian Museum was taken over by the University of Glasgow after Hunter's death, and is still administered by the University Court, but recent search among the shell collections in the museum of the Zoological Department of the University (to which the Hunterian zoological material was removed in 1923) has failed to reveal any collection that can be traced to the time of Cook or Fothergill. Numerous corals, figured by John Ellis in 1786 from Fothergill's specimens, are on display and well-known, but no shells appear to have been received with them. It must therefore be presumed, as with the Lister shells at Oxford (Wilkins, 1953, p. 7), that they lost their identity in the course of time, and may have been abandoned for lack of space.

It is difficult to conceive how this could actually happen, for in the *General Account of the Hunterian Museum, Glasgow*, compiled by Captain James Laskey in 1813, no less than ten closely printed pages were devoted to a description of the Conchological Division of the museum, from which it is evident that most of the specimens were contemporary with those in the Banks and Portland collections, and could only have been acquired by Hunter from Fothergill in 1780.

In his introductory remarks, Laskey notes that "Linné has not described one-fourth part of the objects contained here, and to remedy this deficiency we shall have recourse in many instances, to the synonymies of the late Dr. Solander, which will be designated by the letter "S". From this note and the general wording of his descriptions it is obvious that Laskey made use of an annotated copy of the *Portland Catalogue* when compiling his account, and one item only, describing a *Malleus* (p. 100), in which the wording is almost identical with that on p. 178 of the *Portland Catalogue*, is sufficient to show once again that the Hunterian specimens were contemporary with those in the Banks and Portland collections :

"*Malleus*, var. White Hammer Oyster, very rare. This specimen was brought home by Captain Cook from the Coral Reef at Endeavour River and is very rare. Twelve guineas have been given for a fine specimen."

Although little authentic material appears to remain from the great collections sold during the late eighteenth and early nineteenth centuries, it may be worth while to record some further details associated with the Cook and Banks period.

The earliest collection of interest seems to be that sold in 1779 by George Humphrey, a prominent eighteenth century dealer in shells and curiosities, who had business premises at 48 Long Acre as early as 1768, moving later to Leicester Square, where he resided until his final retirement in 1823 (Dawson, 1949, p. 46). This enterprising dealer had a finger in every conchological pie of any importance for the best part of half a century, the large amount of South Seas material included in this early sale indicating that he was in touch with the officers and crews of most vessels returning from the early voyages. It is now impossible to trace with any certainty the numerous lots of shells sold in 1779; even the catalogue itself is extremely rare, the copy in the library of the British Museum (Natural History), acquired after much patient enquiry, is probably unique (Sherborn, 1905, p. 262).

Principal among the many sale catalogues prepared by Humphrey during his long career was that of the famous collection formed by Margaret Cavendish, Dowager Duchess of Portland (1714?–1785), which contained the choicest specimens of corals, shells, precious stones, and works of art obtainable, and there is no doubt that the pick of the many novelties brought home by Byron, Wallace, Cook and Banks, found their way to the crowded cabinets in her Whitehall mansion, and at the great house at Bulstrode in Buckinghamshire, replete with its many grottoes and aviaries of exotic birds, at which Banks and Solander were frequent visitors (Dewes, p. 241; Dobson, p. 117). The sale of the Portland collection, comprising over 4,000 separate lots, opened on the 24th April, 1786, and continued for the next thirty-seven days, prices ranging from a few shillings for odd lots of shells and fossils, to £1,029 for the famous Portland Vase, the *pièce de resistance* of the whole collection.

Although compiled by Humphrey, the numerous non-Linnean names in the *Portland Catalogue* were the work of Solander, who spent a great deal of time on the Duchess's collection, and for this reason the catalogue must be regarded as important in conchological literature, and of particular interest in connexion with the smaller Banks collection.

Solander worked conjointly on the Portland, Banks, and British Museum collections, marking his manuscript descriptions, and even some of his labels, to indicate the presence of the various species in one, two, or all three of these collections; and as it seldom occurs that specimens are marked for the Banks collection and not for the Portland, it seems that the Duchess had a prior claim to species lacking in her collection.

Items bearing the collector's name appear occasionally in the *Portland Catalogue*, notably Lot 3832 (p. 178), "A very large and fine specimen of the white variety of *Ostrea Malleus* L. brought by *Capt. Cooke* from the *Coral Reef* off *Endeavour River*—*very rare*"; and Lot 4039 (p. 190), "A very perfect specimen of *Voluta pacifica*, S. brought by *Capt. Cook*, from the *Reef* off *Endeavour River*, on the *Coast of New Holland*". A few Portland specimens have come to the British Museum through the Calonne, Tankerville and Broderip collections (Wilkins, 1953, p. 23), but no authentic Cook or Banks shells have yet been found among them.

At the Portland sale in 1786, numerous lots were purchased by an agent acting for the French Minister of State, the Prince of Calonne, but within eleven years these shells, together with the rest of his collection, were sent over to England and offered for sale in 1797. As usual, George Humphrey had the handling of the business, for which he compiled an imposing catalogue, published anonymously, with the title *Museum Calonnianum*, a work which only narrowly missed becoming of scientific importance. Humphrey used a new method in arranging the items in the catalogue, including a number of new genera and species; but as no proper definitions of these were given, his names could hardly be accepted. William Swainson (1840, p. 15 *et seq.*) even went so far as to say that this catalogue, finding its way to France, "served as the main foundation, although unacknowledged, for the subsequent system of Bruguière, if not of Lamarck and Cuvier". The further deliberations of Swainson need not be repeated here, but how far he was mistaken in his enthusiasm for an unrecognized genius may be gathered from the following paragraph of a letter from W. H. Dall to E. A. Smith, dated 10th December 1900, pasted into the British Museum copy of the *Museum Calonnianum*: "In regard to Humphrey, I have it in his own handwriting in one of my copies that the new genera in his catalogue were 'from a manuscript of Mr. Hvas' (Hwass) Danish Consul in Paris who monographed the Cones for the Encyl. Méth." The main interest in the catalogue, however, is the frequent appearance of the initials "M. P.", indicating that items so marked had come from the Portland Museum, and were purchased for the Prince of Calonne in 1786.

Just two years after the Calonne sale, the death occurred of a well-known bibliophile and collector, the Reverend Mordaunt Cracherode (1730-1799), who bequeathed his valuable collection of books and shells to the British Museum. Cracherode was a man of leisure, discrimination, and ample fortune, so that his collection of shells contained only the finest specimens obtainable, for which he paid considerable sums of money to the redoubtable George Humphrey. From the brief outline of the character of the "mild Cracherode" given by Edwards (1870, p. 421), he was hardly the man to attend public auctions, and there is ample evidence from contemporary sources that Humphrey made considerable profits from specimens, purchased for a few shillings and sold to his more important clients at home and abroad for as many guineas; but, while appreciating the great demand for South Seas material at the time, four guineas for a pair of New Zealand *Trochus* (*Maurea tigris* (Martyn)), one of which was polished, certainly seems exorbitant.

In all fairness to Humphrey, however, it must be admitted that the Cracherode specimens were exceptional for this period, and a group of juvenile *Spondylus americanus* Hermann, the brilliantly tinted Thorny Oyster of Florida, forms one of the choicest specimens in the British Museum collection of *Spondylus* to-day. Several Cracherode shells were found to be new to science, and were described by various authors, notably Dr. W. E. Leach in the *Zoological Miscellany* 1814-1817, in which *Haliotis Cracherodii* perpetuates the name of one of the last eighteenth-century collectors.

In 1806 the great collection of Sir Ashton Lever (1739-1788), known as the *Leverian Museum*, was sold by auction on the premises near Blackfriars where it had been

exhibited to the public by James Parkinson (1730–1813), who won the entire collection in a lottery promoted by Lever in 1784. Banks and Cook both presented material to Lever's Museum, which found its way, after the sale, into the Humphrey, Bullock, and Goodall collections. The last named has only recently appeared as a possible source of original Banks material, for while examining a marked copy of the sale catalogue of Bullock's *London Museum* (previously the *Liverpool Museum*), sold by auction in 1819, the name of Dr. Goodall appeared frequently as a purchaser of shells. As it is known from Bullock's own list of donors to his collection (1812, p. vi) that Banks gave him specimens, this seemed a likely field for investigation, particularly as a number of Goodall's shells are still extant in the British Museum collection.

Dr. Joseph Goodall (1760–1840), Headmaster and later Provost of Eton, was an enthusiastic naturalist and well-known to conchologists of the period; his collections were sold shortly after his death in 1840, many lots being purchased for the Museum, the shells amounting to about 840 specimens, all of which were registered and incorporated in that year. The naming of *Marginella Goodalli* by Sowerby in 1825, and *Chiton Goodalli* by Broderip in 1835 are indications of the high esteem accorded to him by his contemporaries.

The *Bullock Catalogue* of 1819, which has been fully described elsewhere (Bowdler Sharpe, 1906 and Mullens, 1917), contained a large number of vernacular names, in addition to the Latin names of Linné and Solander, and as at that time there were often five or more vernacular names in current use for the same shell, it is obviously difficult to decide on the modern counterpart with certainty; but the localities given, many from the Cook voyages, are helpful, and there is no doubt that further search will add more to the few Goodall specimens so far considered contemporary with the early voyages.

This account of some contemporary collections may be suitably concluded with a brief note of a sale which took place early in 1823, composed mainly of the residue of the collections of George Humphrey, who was said by Swainson to be the "chief commercial conchologist of his time". This sale marked his retirement from business and may be regarded, not only as his swan song, but as the end of an era, for it contained the remnants of his considerable stores of early voyage material, and it was probably the last time that the old vernacular names were used in any sale catalogue. The collection was small, comprising only 952 lots, which were sold at moderate prices, ten guineas for an Orange Cowry (*Cypraea aurantia*) being the highest price paid for any single lot.

Solander names were still used in the catalogue, and a certain number were marked "M.C.", being the residue of Humphrey's own purchases at the Calonne sale in 1797, or perhaps those bought back from relatives of earlier clients; there were numerous New Zealand shells offered, including an Imperial Sun Trochus (*Astraea heliotropium*) from Cloudy Bay, which sold for only fourteen shillings.

The details of this last Humphrey sale were obtained from a priced copy of this rare catalogue, autographed and presented to the Linnean Society of London by Hugh Cuming (1791–1865), who became the foremost shell collector of the nineteenth century.

3. HISTORICAL BACKGROUND FROM THE ARRIVAL OF DR. SOLANDER IN ENGLAND TO HIS DEATH IN 1782

The period covered briefly in this section is one in which collections of natural history specimens increased beyond belief. The three voyages of Captain Cook opened up vast coastlines hitherto known only vaguely as the *Terra Australis Incognita*, from which plants and animals were brought in almost too great a profusion to be dealt with by the few naturalists capable of the task. One of the most able among these was Dr. Daniel Charles Solander, who accompanied Mr. Joseph Banks on Cook's momentous first voyage round the World (1768-1771). He was born in Norrland, Sweden, in 1736, and received his later education at the University of Uppsala where he took the degree of M.D., continuing his botanical studies under Linné who looked on the young doctor as one of his most promising pupils. So great was Linné's confidence that in 1759 he sent Solander to England with the strongest recommendations to the well-known naturalist John Ellis, who introduced him to many important people of the day.

This kindly attention was the result of a promise made to Linné in a long letter on botanical and zoological matters, dated October 24th, 1758, in which Ellis gave thanks for the gift of the first part of the *Systema*, just received, concluding the letter with the following paragraph: "I hear your pupil Mr. Solander intends to come to England. Pray desire him to study English immediately, and in a month after he comes here he will speak it fluently. I should be very glad to do him any services in my power, as I find you have a great esteem for him" (Smith, 1821, 1, p. 108).

The recommendations of Ellis soon led to the employment of Solander at the recently opened British Museum, in classifying and cataloguing; by 1763 he was given the post of assistant, becoming Assistant Keeper in 1765 and Keeper in 1773, a position he retained for the rest of his life. Further proof of Solander's ability was his election to the Royal Society within a comparatively few years of his arrival in this country (7 June, 1764), and it was there that he met the youthful Banks in 1767.

These two young and ardent naturalists: Solander, the elder by a few years and still imbued with the teaching of Linné, Banks, wealthy with his appetite for travel sharpened by his recent voyage to Newfoundland with Phipps, were just in the mood to join the expedition then being prepared to observe the transit of Venus from the island of Otaheite (Tahiti) in 1769. Permission to join the vessel was soon obtained from Banks's boyhood friend, Lord Sandwich, then First Lord of the Admiralty, but the entire expense of the elaborate equipment for collecting, and a staff of artists and servants, was paid for by Banks himself at a cost variously stated to be between five and ten thousand pounds. Proof that he had no reason to regret this large outlay from his private fortune lies in a letter describing the voyage in the "Endeavour," addressed to Count Lauragais, dated 6th December, 1772, quoted by Cameron (1952, App. G., p. 319) in which Banks says: "The number of natural productions discovered in this voyage is incredible; about one thousand species of plants that have not been described by any botanical author; five hundred fishes; as many

birds ; with insects, sea and land, innumerable." The technical description of all the acquisitions on the voyage was allotted to Solander, who acted as paid assistant to Banks at the generous salary of £400 per annum.

The day-to-day story of this great voyage, said by Campbell to be the prelude to the building of the Empire in the South Seas, has been told at length in the printed *Journals* of Banks (Hooker, 1896) and Cook (Wharton, 1893), from which extracts relating to shells will appear later in this paper ; but the failure of either Banks or Solander to publish even meagre descriptions of the completely new genera and species "innumerable" brought back to this country in 1771 needs some explanation.

From the large amount of manuscript available, it is obvious that Solander was industrious, at any rate in his earlier years, noting accurately, and with the new Linnean precision, plants and animals seen for the first time in their living state, doubtless with the best intention to publish the results on returning to England. The very success of the voyage, however, gradually slowed any efforts at publication, for Solander, being of a lively and agreeable nature, was welcomed everywhere, so that delay has usually been attributed to "interruption caused by other avocations, the dissipation of London Society . . . and the indolence induced by a sedentary and luxurious life" (Smith, 1821, 2, p. 2). Correspondence was likewise neglected, and many were the complaints of broken promises from his friend and master, Linné, in letters to John Ellis (October to December 1771) in which the ageing savant expressed his concern at the apparent neglect of the unique material brought back in the "Endeavour"; and it was not until early in January 1772 that Ellis, after repeated invitations, at last persuaded Solander to call and see him about the corals they were to describe together. During this visit Ellis confronted Solander with all Linné's letters imploring samples of the new plants discovered in Terra Australis, and at last exacted a promise that he would attend to the matter without delay (Smith, 1821, 1, p. 276).

Solander's dilatoriness was partly due to the preparations he and Banks were making to take part in Cook's voyage in the "Resolution" to the South Pole, a scheme that fell through, partly because of the misdirected enthusiasm of Banks in overloading the vessel with collecting gear, and partly owing to the restrictive practices of Sir Hugh Palliser, then Comptroller of the Admiralty (Hooker, 1896, p. xxvii). Banks had already engaged a staff to accompany him on the voyage, and in order that they should not be left unemployed and all the expensive equipment wasted, he and Solander decided on a trip to Iceland which duly took place during the summer of 1772.

This was the last time these now inseparable companions left England on any expedition, although another South Seas voyage was never far from their minds. Solander was fully engaged on his work at the Museum ; acting as secretary and librarian to Banks (in whose house he had been "domesticated" since the return of the "Endeavour"), and of course attending the numerous scientific and social functions at which he and Banks were seen in each other's company almost as frequently as their literary contemporaries and acquaintances, Boswell and Johnson. Banks himself became involved in many undertakings, the morning receptions in

the library of his handsome house in Soho Square eventually becoming the recognized meeting place for informal discussion between visiting scientists of all nationalities. The mass of personal correspondence, still extant in various parts of the world, contains abundant evidence of the far-reaching influence of this imposing figure of the eighteenth century, and it is not altogether surprising that the endless memoranda and letters that flowed from Soho Square on such diverse subjects as the colonization of Australia, the running of Kew Gardens, and the affairs of the Royal Mint, left little time for the publication of scientific work, so that much of the detailed and descriptive work on Banks's library and collections was left particularly to Solander and, after his death, to the patient and persevering Jonas Dryander (1748-1810), known affectionately to the quaint household at Soho Square as "Old Dry". When it is realized that in addition to his other commitments Banks had a large estate at Revesby in Lincolnshire, in the efficient running of which he was deeply interested, it is remarkable that he and his helpers produced as much work as they did.

Solander published nothing independently but was largely responsible for the descriptions in Brander's *Fossilia Hantoniensia* published in 1766, and those in John Ellis's *Natural History of Zoophytes* published posthumously by his daughter, Martha Watt, in 1786, and dedicated by her to Sir Joseph Banks.

4. THE SOLANDER MANUSCRIPTS AND THEIR USE BY SUBSEQUENT AUTHORS

Frequent reference has already been made to the Solander manuscripts, left incomplete in 1782, and it now becomes necessary to describe these in more detail, particularly the mollusca volumes, which are intimately connected with the Banks shell collection.

Iredale (1916, p. 86) neatly describes the manuscripts as follows: "In the British Museum (Natural History) is kept a cabinet containing Solander's manuscripts, received with Sir Joseph Banks's collections, and from a glance over these it may be suggested that he hoped to publish a Survey of Natural History, comparable to Linné's *Systema Naturae*, but on an even more extensive and accurate scale than Gmelin's edition as well as more replete with personal knowledge. A very large quantity of manuscript deals with mollusca, which appear to have been a favourite study of his since he collected them on his voyages." The manuscripts consist of hundreds of slips, six inches wide by four inches deep, now bound in twenty-seven volumes, of which fourteen deal with the mollusca. These slips, arranged in accordance with the Twelfth Edition of the *Systema Naturae* were originally stored loose in small Solander boxes, to facilitate the frequent additions and alterations made over a period of years; twenty-four similar volumes of botanical manuscripts which formed the basis of Aiton's *Hortus Kewensis*, are also in existence.

As already stated these manuscripts contained many new names of plants and animals, for apart from the specimens collected during Cook's voyages and other sources, Solander re-described much of the earlier Museum material, mainly from the Sloane collection, using the binominal nomenclature of Linné, so that a number

of the manuscript volumes, particularly of insects and mollusca, are literally catalogues of the British Museum collections shortly after it was opened in 1759.

The mollusca slips are generally marked with initials, indicating in which collection examples of the species described were to be found, usually in the following order: M.C.P. (M. Cavendish Portland); J.B. (Joseph Banks), and M.B. (British Museum), sometimes all three appearing on the same slip. The localities given for species collected personally by Banks and Solander are often followed by the additional initials J.B. or D.S.

The publication of Solander's work would have considerably altered the molluscan nomenclature we know to-day. For instance, the well-known New Zealand lamellibranch, *Chione stutchburii*, named and figured by Wood in 1828, would have received Solander's specific name *antiquata*,* fully described by him from specimens now extant in the Banks collection; similarly the North Australian and Queensland *Batissa triquetra*, described by Deshayes from Australian specimens in the Cuming collection in 1854, would be the *erosa* of Solander, labelled Nova Cambria (fig. 10). While realizing the futility of reflecting on the might-have-been, it is still a matter for regret that Solander's work remained unpublished in Sir Joseph Banks's library, for as already noted, it would have been more extensive and accurate than the Thirteenth Edition of the *Systema Naturae*, eventually published by J. F. Gmelin (1788 to 1793), a work that contained sufficient errors and repetitions to indicate that the author lacked Solander's practical experience and gift for concise description.

All the molluscan slips are in Solander's writing, and were evidently written at different periods, some neatly, others hurriedly, with a fair number of alterations and additions. The slips are numbered consecutively, as in the Twelfth Edition of the *Systema*, one to each species, varieties being noted overleaf. Descriptions of Solander's new species were numbered according to the approximate position they would occupy in the completed revision; thus the description of a new species of *Venus* is marked 115-116, indicating that it was to be placed between the Linnean *Venus dysera* (115) and *Venus verrucosa* (116), the latter presumably becoming 117 in the final renumbering of the slips. Incidentally, this particular slip was first marked 93-94, the numbers given to these two species in the Tenth Edition of 1758, from which it would appear that Solander's revision must have been started before the publication of the Twelfth Edition of the *Systema Naturae* in 1766.

References are given on the slips to Linné's *Systema* and *Mantissa*, and to figures and descriptions in the works of Lister, Petiver, Sloane, Kircher, Klein, Martini and other contemporary authors on which some of Solander's names were based. In some volumes pencilled observations made during the voyage of the "Endeavour," sometimes on the backs of old lists of Tahitian words and phrases, have been inserted here and there. A slip in one of the volumes of *Pisces* is of particular interest, for it records descriptions of certain fish, dictated to Solander by Omai, the native of Tahiti brought to England by Captain Furneaux in the "Adventure," sister ship to Cook's "Resolution," in 1774.

Before concluding this section with brief references to the authors who have used or referred to the Solander manuscripts, it may be of interest to list the contents of

* *Nomen nudum*, Portland Catalogue, Lots 1562 and 2253.

the "mollusca" volumes, previously unrecorded. These are numbered 1 to 14, and were bound in the same order as in the original Solander boxes.

Vol. 1.—Doris	Vol. 5.—Spondylus	Vol. 11.—Voluta
„ 2.—Chiton	Chama	„ 12.—Buccinum
Balanus	Arca	„ 13.—Buccinum
Lepas	„ 6.—Ostrea	Strombus
Pholas	Vol. 7.—Anomia	Murex
Mya	Mytilus	Trochus
Solen	Pinna	Vol. 14.—Turbo
„ 3.—Tellina	Argonauta	Helix
Cardium	Nautilus	Nerita
Mactra	„ 8.—Conus	Patella
Donax	„ 9.—Cypraea and Bulla	Dentalium
„ 4.—Venus	„ 10.—Voluta	Haliotis
		Serpula
		Teredo

Most of the genera in volume 14 have only a title slip giving the general characters of the genus with one or two species. From volume 10 to 13, specimens are marked only from the Portland collection, no further reference being made to the Banks or British Museum collections. The genus *Murex* was never completed, and the only species noted are those taken from Brander's *Fossilia Hantoniensia*, a fact that accounts for the considerable number of unnamed *Murex* in the seventh drawer of the Banks collection noted above (p. 73).

The Solander manuscripts appear to have been always available to workers, first in the library of Sir Joseph Banks, and later in the British Museum, so that a number of authors have used and referred to them from time to time, commencing with George Humphrey in 1785–86, who used them extensively when compiling the *Portland Catalogue*, and again in 1797, when he compiled the *Museum Calonneanum*, a collection that contained much of the Portland material named by Solander. In the preface to the Calonne catalogue (p.v.) Humphrey states that "The Linnean name of each species, where it could be ascertained, or was not too indelicate, is annexed . . . and those of the late Dr. Solander, from an unpublished MS of his, descriptive of the shells in the Portland Cabinet".

Richard Pulteney frequently referred to Solander's names and to specimens in the Portland Cabinet when compiling his *Catalogue of the Shells of Dorset* in 1799. Pulteney was in constant touch with the Duchess for many years, for she relied much on his judgment regarding British species, of which she had many unique specimens from the Weymouth and Portland districts of Dorsetshire. *Gastrochaena dubia*, the *Mya dubius* of Pennant, described by him in 1777 (p. 69) was said by Pulteney to have been "first distinguished by the late dowager duchess of Portland at Weymouth".

In 1804 Dr. William Maton and the Rev. Thomas Rackett together published a

Descriptive Catalogue of the British Testacea in Volume VIII of the Linnean Transactions. This was a retrogressive work, mainly because of too strict an adherence to the Linnean method. Accordingly, on page 22 of their paper, the authors state that "Differently from the method pursued by some modern authors, who have followed Dr. Solander's original suggestion, we prefer retaining the Linnean genus *Lepas* undivided". Nor did they agree with the separation of the pectinated species from the Linnean genus *Ostrea*, to form the separate and clearly defined genus *Pecten*. This obstinate attitude to progress is all the more remarkable since Maton and Rackett's paper was not read at the Linnean Society until some months after the publication of Montagu's *Testacea Britannica* in September 1803, which contained several logical improvements on the older classifications, so that their paper was, in some respects, out of date even before it appeared in print.

In 1808 Montagu followed his previous work with a *Supplement*, with additional plates, and a reprint of Boys and Walker's *Minute and Rare Shells of Sandwich*, originally published in 1784, dedicated to the Duchess of Portland and Sir Joseph Banks. This *Supplement* becomes of added interest to the period under review, when it is learnt from the Introduction (p. ii) that apart from possessing the complete cabinet of William Boys's *Testacea minuta rariores*, which contained specimens labelled by Solander, Montagu also had the opportunity of examining an additional collection, also labelled by Solander, lent to him by Captain Laskey, who had purchased it at the Portland sale in 1786 for the modest sum of one guinea. (Lot 3088. A curious collection of minute Shells from the English Coast, *including most of the new species figured by Walker in his Account of Minute Shells discovered at Sandwich, with a MSS. catalogue*). Montagu was thus able to compare many of Solander's names printed in the *Portland Catalogue* with all the original material.

The next work directly associated with the Solander manuscripts to be noted is *A Descriptive Catalogue of Recent Shells*, compiled by L. W. Dillwyn in 1817 and "arranged according to the Linnean method, with particular attention to the Synonymy". This work, dedicated to Banks, is stated by the author to be "an attempt to elucidate the species of shells described in Gmelin's edition of the *Systema Naturae*, and to pave the way for a better arrangement"; but how far Dillwyn succeeded in his object can best be judged from the critical notes on conchological writers contained in Turton's *Conchological Dictionary* (1819, pp. xii-xv), in which he speaks severely of Dillwyn's work at some length. He says *inter alia* that it offered nothing more than a collation of different authorities, and that "Of the celebrated manuscripts left by Dr. Solander, we learn little more than what we have long known from the Portland and Calonnian catalogues". At this distance of time, however, Dillwyn's two volumes are of value, not only for the very full synonymies, but as the medium which validated some of Solander's names.

It is difficult to understand why Dillwyn did not make use of the Banks collection when compiling his extensive catalogue; had he done so, many errors in identifying Solander's species would have been avoided. He had the full use of Banks's library, without which "no writer on Natural History can hope to attain any tolerable degree of perfection" (Advertisement, p. vi); and it is strange that he did not realize the significance of the frequently recurring initials "J.B." throughout the

manuscripts he examined so closely. Enquiries into the meaning of these initials would have had little result at this date (c. 1817), for the erudite Dryander was long since dead, and one feels that Banks himself would remember little of the work that was so personal to Solander. But the collection itself (at that time already in the Museum of the Linnean Society) could surely have been examined by a sufficiently tenacious Fellow, when the connexion between initials, manuscripts and collection would have become as obvious as it is to-day.

Dillwyn's only other conchological work was the important English *Index* to Martin Lister's *Historia Conchyliorum* (1685-97), published at Oxford in 1823, which was a vast improvement on the inadequate index provided by William Huddesford, in his 1777 edition of Lister's great work. In his *Occasional Remarks* Dillwyn again quotes the Solander manuscripts, taking the opportunity to correct several errors in his own *Descriptive Catalogue* of 1817, and on page 16 of the *Lister Index* he casually refers to a specimen he bought from Mr. Humphrey, "whose shells are often sold under Solander's names"—a chance remark that explains the origin of the many Solander names used by Hwass, Bruguière and other continental authors, apart from those culled direct from the *Portland Catalogue*.

Dillwyn's apparent indifference leaves William Swainson as the only author so far known to have actually used the Banks collection, during its sojourn of nearly half a century in the Museum of the Linnean Society, when working on the first series of his *Zoological Illustrations*, completed in 1823. In this same year, Edward Donovan, a more elderly, but equally prolific compiler, started to publish the first of his five volumes of *The Naturalist's Repository*, in the conchological portions of which he referred frequently to the Solander manuscripts, making it again clear that they have always been available to students. When describing a variety of *Voluta scapha* Gmelin, in the text to plate iv, Donovan states that "The late Dr. Solander, as it appears from his manuscripts preserved in the library of the late worthy President of the Royal Society, Sir Joseph Banks, Bart. had designated this kind of *Voluta* by the name of *Nobilis* . . . It is however certain, that it is no other than a variety of *Voluta Scapha* of the Linnean school. . . As a variety we admit this shell to be distinct and well defined, and it is under this persuasion the term *Nobilis*, assigned by Dr. Solander, is subjoined to the specific name *Voluta Scapha*." Further on, in the text to plate xxxiv, referring to *Terebratula sanguinea*, he notes that "This is one among the number of those very choice accessions to conchological knowledge of the last century, that was derived from the scientific labours of our first circumnavigators in the Southern Ocean; it occurred to them upon the coast of New Zealand . . . so far plentifully that after the Banksian cabinet was supplied there were several specimens to spare for distribution among the friends of Sir Joseph Banks, Dr. Solander, and Captain Cook. From this little store the species passed in the first instance into several collections, and among others into that of the late Duchess of Portland, Dr. Chauncey, Mr. Cracherode, Mr. G. Humphrey and some others." Donovan seemed rather hurt with Leach, who described this species as *Terebratula sanguinea* in 1814 (vol. 1, p. 14.) without due acknowledgment, and took some pains to show that the name originated with Solander, where it stands in his manuscript as *Anomia sanguinea*.

The description of this species in Solander's manuscript is followed by the name of Forster, so it appears that specimens were brought back from Cook's second voyage in 1775, and one of these, the Cracherode shell figured by Leach, is still extant in the British Museum collection of Brachiopods.

The manuscripts were consulted again in 1825 by W. J. Broderip, when G. B. Sowerby was compiling the sale catalogue of the famous Tankerville collection, which contained a number of specimens from the earlier Portland and Calonne sales, and it was for item No. 2150 that the following descriptions were printed in the Appendix to the Tankerville catalogue (pp. xxix-xxx).

2150. *Voluta Aulica*, Solander

Observations. There can be no reason to doubt this being the identical specimen which was described by Dr. Solander from the Portland collection. As any information relating to the history of so beautiful and rare a shell may be interesting to our readers, we copy Dr. Solander's description, which has been communicated to us by W. J. Broderip, Esq., from the MS. in the late Sir Joseph Banks's library, together with the notices relating to it from the catalogue of the Calonne collection.

I. From Dr. Solander's MS.

Spira apice mammillari

Aulica. *Voluta emarginata, oblonga, inermis, albo luteoque nebulosa, spirâ conicâ; anfractibus obliquè planis: mamillâ lævi; columella quadruplicata.* Habitat in Oceano I. M.C.P.

II. From the Catalogue of the Portland Collection

4021. A very fine specimen of *Voluta Aulica*, S., a beautiful red clouded species of the Wild Music kind, its country unknown, unique.

III. From the Catalogue of the Calonne Collection

273. *Aulica*—le Courtisan ou le Nuage rouge—Courtier or red clouded—*Voluta aulica*, Soland. This beautiful shell is unique. Its country is unknown, but presumed to be from some newly discovered island in the South Seas. M.P. 4021.

This historic type specimen was purchased at the Tankerville sale by W. J. Broderip, and came to the British Museum with his collection, purchased in 1837. It was first figured in the *Tankerville Catalogue* in 1825, and later by Wood (1828), Sowerby (1847), and Reeve (1849).

No further reference to the Solander manuscripts appears to have been made by authors until 1855, when Sylvanus Hanley at last published the results of his work on the Linnean shell collection, in the introduction to which (pp. 7-8) he quotes the three interleaved copies of the *Systema Naturae* in the library of the Linnean Society, used by him in elucidating the "more ambiguous" species, the third of which was "the one possessed (ed. 12) by the ill-fated son of Linnaeus, which is identical, or nearly so, with the manuscript of Solander, the esteemed conchological pupil of the great master". A recent examination of this third copy (unpublished), certainly

indicates that the younger Linné added several of Solander's names, particularly to the genus *Venus* which was increased by at least twenty species in the interleaved copy; the additional names include *Venus turgida*, *arguta*, *rubescens* and *rigida*, all Solander names to be found in the manuscripts, the actual specimens in the Banks or Portland collections.

It seems fairly certain from the above that Solander may have shown the specimens and descriptions to the younger Linné while he was visiting England during 1781 and 1782, spending much of his time studying in Banks's house. He was among the first to go for extra medical aid when Solander had his fatal seizure on the morning of 16th May, 1782 (Hooker, 1896, p. xlii).

Hanley again mentions the manuscripts in the list of references to his revised edition of Wood's *Index Testaceologicus*, published in 1856, noting on p. xix that they were "quoted chiefly by Dillwyn, but also evidently studied by Hwass and Bruguière. Although not printed, several copies have been taken". The reference to Dillwyn is correct, but no evidence in support of the rest of his statement has been forthcoming, unless the *Portland Catalogue* is one of the "copies" referred to; for a number of Solander names were certainly used without acknowledgment by Hwass and Bruguière, notably *Conus augur*, *nocturnus*, *quercinus* and *sulcatus* (see p. 85 above).

Hanley uses many of the Solander names taken up by Dillwyn in the text of his revised edition of Wood's *Index*, but few references were made to them in his previous work on the Linnean shells, and it seems odd that he did not make more use of the actual manuscripts of the former pupil of Linné when facing the many problems that arose. The Banks shell collection appears to have been unknown to him, although at that time (c. 1850) it must have been housed in the same building as the collection on which he was working. Swainson, as already stated, used it thirty years before, but judging by the remarks of Gage (1938, p. 124), the "heterogenous mass of material" stored in the rooms of the Linnean Society was not available for study. Had Hanley been able to locate and examine the Banks collection, then probably complete, it would have simplified his self-appointed task, for it contained specimens contributed by some of the same collectors that supplied the Linnean cabinet.

Since 1856, notes and lists of Solander's names from the *Portland Catalogue* have been published, notably by Iredale (1916), and by Dall (1921), in which it was proposed that certain names could be accepted if originally accompanied by the citation of figures in the literature, so that a few specimens in the Banks collection, described in manuscript by Solander, and later published in the *Portland Catalogue* with reference to a figure, may be regarded as type specimens.

For example, the *Venus nimbosa* S. of the *Portland Catalogue* (Lot 3761, p. 175) from Florida, referred to the figure of Favanne (tab. 49, fig. 1, I, 1780), is part of the type set marked by Solander with the locator initials M.C.P., J.B., and M.B. The two Banks specimens (fig. 16 and 16 a, b) are therefore original syntypes, the Lectotype designated on p. 110 superseding the Neotype designated by Clench (1942, p. 5)¹ who follows Dall (1902, p. 351) in accepting the Solander name in preference

¹ Provisions for replacing Neotypes with recently recovered type material have lately been proposed in the *Copenhagen Decisions on Zoological Nomenclature*, 1953, Part 2, p. 31, para. 40.

to the *Venus gigantea* Gmelin, 1791. It should be noted, however, that for Solander's *Venus nimbosa*, there was no reference to a figure in his original manuscript description (reproduced in fig. 17), thus confirming that this and other references were added by the anonymous compiler of the *Portland Catalogue*, in accordance with a statement printed at the foot of the List of References (pp. v-vi) to the effect that "Where the Name has no reference, it was given by the Compiler of this Catalogue". As it is known on the published authority of Dillwyn (1817, p. 117 and 1823, p. 5) that the compiler was, in fact, George Humphrey, the latter may be regarded as the first publisher of the names used therein, whether Solander's or his own.

This view has already been accepted by some recent authors, notably Rehder (in Rogers, 1951), who prints a number of Portland names, unreservedly attributed to Humphrey, in his *List of Modern Names* in the Second edition of *The Shell Book* (pp. 487-503), where, needless to say, *Macrocallista nimbosa* [Humphrey] replaces *Callista gigantea* (Gmelin) of the first edition.

The latest references to the Solander period are contained in an historical review of the Linnean molluscs (Dodge, 1952 and 1953), to which further reference will be made below.

5. CONTRIBUTORS TO THE COLLECTION

Unlike the shell collection of Sir Hans Sloane (Wilkins, 1953*b*), there was no separate catalogue of the Banks collection, all the available information being recorded on the labels or in the Solander manuscripts, which were intended to include descriptions of all the species of shells then known, irrespective of ownership; but as already shown above, the three main collections from which they were recorded are duly noted. Sometimes, the name of the actual collector or donor was also included, but not in any way so consistently as in the Sloane catalogues. Many of the specimens were collected by Banks and Solander themselves, so that the few additional contributors can all be mentioned briefly below.

MARGARET CAVENDISH BENTINCK, Dowager Duchess of Portland (1714?-1785), née Harley; married the Second Duke (1708-1762) in 1734. For many years she was the leading patroness of natural history in England, and particularly devoted to conchology. Her exotic shells and corals were worked on by Solander and Ellis, and the British shells by Pennant and Pulteney. Sir Hans Sloane (in his later years), Wallace, Cook, Banks and many other early voyagers contributed to the collection sold in 1786, the year following her death. The few British shells in the Banks collection were evidently given to him by the Duchess.

ADMIRAL SIR EDWARD HUGHES (1720-1794). Saw service in the East Indies from 1773 to 1777, and again from 1778 to 1783; co-operated in the capture of Negapatam from the Dutch during 1781, and Trincomali in the following year; made Admiral of the Blue in 1793.

COMMODORE THE HON. JOHN BYRON (1723-1786). Navigator; grandfather of the poet Byron; commanded the *Dolphin* and *Tamar* during an abortive attempt to find a strait between Hudson's Bay and the South Sea (1764-66); became Governor

of Newfoundland (1769) and Rear Admiral (1775). Commanded the West Indies fleet 1778-9; worsted off Granada (1779).

JOHANN GERHARD KOENIG (1728-1785). Danish medical missionary in Tranquebar; former pupil of Linné; kept detailed lists of plants, animals and minerals observed during his voyages, eventually bequeathed them to Banks (Banks MSS 37-55). Koenig also sent numerous East Indian plants to Banks in 1776, together with some shells, still extant and bearing his name on the labels.

SIR WILLIAM HAMILTON (1730-1803). Diplomat and archaeologist; ambassador at the Court of Naples for many years during which he published descriptions of volcanoes and earthquakes; purchased the famous Portland Vase from Byres, the architect; married Emma Hart in 1791; entertained Lord Nelson at Naples in 1798. Sent shells to Banks from the Bay of Naples.

CAPTAIN TOBIAS FURNEAUX (1735-1781). Circumnavigator; second lieutenant of the "Dolphin" which sailed with Wallace 1766-68; commanded the "Adventure" on Cook's second voyage 1772-1775; visited Tasmania during separation from the "Resolution," returning to England in 1774 with Omai, the first South Sea islander to be seen in this country. Brought shells to Banks from the Pacific.

CAPTAIN THE HON. CONSTANTINE PHIPPS, Second Baron Mulgrave (1744-1792). Oxford friend of Banks, who accompanied him on a voyage to Labrador and Newfoundland in H.M.S. "Niger," April to November, 1766; commanded the "Racehorse" on the Polar Expedition of 1773, in which vessel Horatio Nelson served as midshipman. Appointed a Lord of the Admiralty 1777; distinguished himself off Ushant in 1778 while in command of the "Courageux."

HENRY SMEATHMAN (fl. 1750-1781). Botanist and entomologist, engaged by Banks, Fothergill and Drury in 1771 to collect specimens from the west coast of Africa; sent home many new species of plants, insects and shells from Sierra Leone; wrote the first detailed account of the Termites of Guinea; started a scheme for a settlement of Poor Blacks near Sierra Leone, but died before this was accomplished. The Passion Flower *Smeathmannia* was named after him (see also Fox, 1919, p. 213).

JOHANN GEORG FORSTER (1754-1794). Naturalist and artist, son of Reinhold Forster, with whom he came to England in 1766; assisted his father as naturalist on Cook's second voyage (1772-5); elected F.R.S. in 1775 for his work on the South Seas flora; prematurely published an account of the voyage in 1777 in opposition to the official one by Cook which appeared a few weeks after. Generously paid by Banks, but caused much unpleasantness by further demands for money. On his return to Germany, J. G. Forster was appointed professor of natural history at Wilna, and later librarian at Mainz.

NOTE :—The names of the occasional contributors listed above do not necessarily appear in the following descriptive catalogue, for the specimens added by them to the Banks collection were in some instances included among the missing shells presumed to have been sold in 1863.

6. DESCRIPTIVE CATALOGUE OF THE BANKS SHELL COLLECTION

Introduction

In his recent biography of Banks, Dr. H. C. Cameron concludes his acknowledgments with a remark which is singularly apposite to the material described in the following catalogue, when he says that "The trail of Captain Cook has been explored so thoroughly and by so many, and the trail of Banks is so faint and overgrown, that in either case the discovery of anything that has been overlooked or forgotten brings with it, perhaps, a disproportionate degree of satisfaction". This feeling was certainly experienced during the examination of the forgotten Banks collection, but it eventually gave place to the conviction that any satisfaction felt in recording so many specimens of shells, collected by two of the principals in the voyage of the "Endeavour," will not be out of proportion to the amount of interest aroused, not only among conchologists, but also among students of the earlier voyages.

Some doubt has been felt about the best method to be employed in compiling this catalogue, for it is almost certain that the surviving portion of the collection stands as it was left by Dr. Solander in 1782, and it would have been appropriate for the cataloguing to proceed drawer by drawer in the original order, preserving his numbering of the specimens on the labels, with the addition of the names by which they are known to-day. This method, however, while serving to illustrate the numerous improvements made by Lamarck and later authors to the polyglot genera of Linné, would be rather too cumbersome, and it seemed more useful to group the specimens geographically. Current names of the genera and species found in the collection, and known to occur in the given localities, will be placed on the left of the pages, in bold type, with selected details from the Solander labels and manuscripts on the right-hand side, three dashes indicating that the label is blank or missing.

Sixty-one manuscript names occur on the labels in the Banks collection; thirty-three of these were printed by Dillwyn (1817), either as authentic species or as synonyms; fourteen names unrecognized by him are among the many *nomina nuda* printed in the *Portland Catalogue* (1786), and an equal number remain in manuscript. As it is now known to which species most of these *nomina nuda* and manuscript names apply, the danger of needlessly adding to already overcrowded synonymies is fully realized, and therefore, with very few exceptions, only the names used by Dillwyn are included in the following lists, three asterisks indicating that the original Solander name has been purposely omitted.

The localities on the original labels are frequently abbreviated, and must be taken in the broadest sense, for it will be remembered that New Holland, the name given by the Dutch to the North West coast of Australia, was in general use in Solander's day and even much later; the East coast, first charted by Cook in 1770, was for a time known as New Wales, the Latinized Nova Cambria of the Solander labels and manuscripts. According to Wharton (1893, p. x), the name New South Wales was not bestowed without a great deal of consideration; at one stage New Wales was the name fixed upon, and in one of the three copies of Cook's *Journal*, it is

so called throughout. Similarly New South Wales does not occur on any of Solander's labels, or in his manuscripts; Nova Cambria, or the abbreviation N.C. being used throughout. Accordingly, the localities New Holland (N.H.), and Nova Cambria (N.C.) are used somewhat indiscriminately, all referring to the progress of the "Endeavour" along the east coast of Australia, from just below the present Cape Howe to Possession Island where Cook "once more hoisted English colours, and in the name of His Majesty King George the Third, took possession of the whole Eastern coast . . . by the name of New Wales, together with all the Bays, Harbours, Rivers, and Islands situated upon the said coast" (*Journal*, 22nd August, 1770).

Cook is known to have been reticent about his names for newly discovered places, and consequently Solander may have jotted down the "N.H." on his rough labels prior to Cook's announcement quoted above. In his own *Journal*, when summing-up the results of the exploration of the East coast, Banks heads his chapter "Some account of that part of New Holland now called New South Wales", and this seems to confirm that the name was finally agreed upon shortly before leaving Australia on 26th August, 1770.

The Banks shell collection falls naturally into two groups, and will therefore be catalogued in two parts: (1) specimens collected from classic localities visited by the "Endeavour" from 1768 to 1771, and (2) specimens given to Banks from various localities up to the year 1782. All the shells have been identified, including those numbered but unnamed by Solander, and these will all appear in the catalogue.

Nomenclature used throughout is based mainly on Thiele's *Handbuch* (1931-35); the papers of Iredale (1935 and 1939a) and Schilder & Schilder (1938) have been consulted for records of *Cypræidae*, and Allen's *Australian Shells* (1950) for the general distribution of Australian species. The author alone is responsible for the identifications.

DESCRIPTIVE CATALOGUE PART I

Shells from localities visited by the "Endeavour," 1768-1771

RIO DE JANEIRO

Cook and his party arrived here on Monday, 14th November, 1768 in "fine, pleasant weather", but great was the disappointment to Banks and Solander when it was learned that only the Captain and a few men would be allowed ashore to purchase supplies, and then only under strict surveillance, for doubt was expressed by the Portuguese Viceroy as to the true character of the "Endeavour."

Banks however was not to be deterred by this veto, and managed to get ashore before dawn one morning and stayed until "dark night", having noted many of the plants and animals of a country thought by him to have been unvisited by even "tolerably curious" persons since the visit of Marcgrav and Piso in 1640 (*Journal*, p. 28).

It is unlikely that Banks stayed long in sight on the beach during this surreptitious visit ashore, so the few Brazilian shells in the collection, some labelled "Rio Janeiro,"

were probably taken from the island of Raza, beyond the Fort of Santa Cruz, where the best part of a day was spent in collecting, unmolested by the Viceroy's men.

<i>Cerithium atratum</i> (Born)	.	.	.	— — —	
<i>Cypraea cinerea</i> Gmelin. Juveniles	.	.	.		<i>Cypraea bifasciata</i> Sol. MSS.
<i>Cyphoma gibbosa</i> (Linné)	.	.	.		<i>Bulla gibbosa</i> L.
<i>Leucozonia brasiliana</i> d'Orbigny.	.	.	.		Rio Janeiro.
<i>Cymatium parthenopeus</i> (von Salis)	.	.	.	" "	
<i>Aulacomya ovalis</i> (Lamarck)	.	.	.	" "	
<i>Modiolus falcatus</i> (d'Orbigny)	.	.	.	" "	
<i>Modiolus guanensis</i> (d'Orbigny)	.	.	.	" "	
<i>Pinctada vulgaris</i> (Schumacher)	.	.	.	" "	
<i>Pteria argentea</i> (Reeve)	.	.	.	— — —	
<i>Macrocallista maculata</i> (Linné)	.	.	.		<i>Venus maculata</i> L. Rio Janeiro, Brasil. J. B. vars. a, b, c, d.
<i>Tivela mactroides</i> (Born)	.	.	.	— — —	
<i>Tivela trigonella</i> (Lamarck)	.	.	.		<i>Venus</i> . * * * Brasil.
<i>Dosinia concentrica</i> (Born)	.	.	.		<i>Venus dilatata</i> Sol. MSS. Rio Janeiro. J.B., D.S.
<i>Ventricola rigida</i> (Dillwyn)	.	.	.		<i>Venus rigida</i> Sol. MSS.
Lectotype (plate 19, figs. 23 and 24)	.	.	.		Rio de Janeiro.

Dillwyn, *Descriptive Catalogue of Shells (Venus)*, pp. 164-5, 1817.

	Length	Height	Thickness.
Dimensions of Lectotype . . .	53 mm.	49 mm.	38 mm.

Type locality: Rio de Janeiro, Brazil.

<i>Anomalocardia flexuosa</i> (Linné)	.	.	.	<i>Venus Phryne</i> L.
(fig. 20, a, b, c)				Rio Janeiro.
<i>Atactodea striata</i> (Gmelin)	.	.	.	Rio Janeiro.

Apart from the specimen designated as the Lectotype of *V. rigida* (Dillwyn), other Rio de Janeiro shells of particular interest are the four specimens of *Anomalocardia*, first identified by Solander as *Venus flexuosa*, but afterwards altered on the label and in the manuscript description to *Venus Phryne*, a Linnean species decided by Hanley (1855, p. 171) and more recently by Dodge (1952, p. 102), to be inadequately described by Linné and therefore a doubtful species. The combined evidence furnished by actual named specimens, further correlated with the critical notes of Dodge and Hanley, suggests that the Linnean specimen selected and figured by Hanley (pl. iv, f. 1.) as the *Venus flexuosa* Linné, may be none other than the type of *Venus Phryne*.

There is little doubt from all the available data that both Linné and Solander failed at first to realize the extreme variability of the shells they were describing, for an adequate series of *A. flexuosa* may vary in colour from pale yellowish-white to olive or chestnut brown, with or without the pronounced anterior beak of the shell seen in some examples, but the violet veining of the posterior depression, mentioned by Linné in his original description of *Venus Phryne*, is usually present. It was

apparently only some time after his first description of *Venus flexuosa* (based on an immature or intermediate stage, and marked M.B. in his manuscript), that Solander appreciated the affinity between his *V. flexuosa* and Linné's *V. Phryne*, altered his second description accordingly, and added three colour varieties, two in the Banks collection (Fig. 20, a, b,) and one in the Portland.

On the reverse of his slip describing these varieties Solander noted that "the colour is either brown or yellowish, and the beak in different shells is more or less produced", a note that does more than anything else to show that the variation in shape and colour of the shell labelled *Venus Phryne* by Solander is identical with the range noted for the *Anomalocardia flexuosa* of recent authors. In conclusion, it should be noted that the specimen pronounced by Hanley to be the type of *Venus flexuosa*, was not actually marked with that name in the Linnean collection, for he says (1855, p. 67): "I can find but a single shell in the whole Linnean collection that possesses the required characteristics of this species," an admission overlooked by Dodge (1952, p. 97), who refers to the "marked specimen found in the collection"; furthermore, it seems unlikely that Linné ever possessed a specimen of Solander's *V. flexuosa*, for the original description was supplied to him by Solander and is duly acknowledged in the text of the Twelfth Edition of the *Systema Naturae* (1131, 121), where the species was first described, with augmented diagnosis and with the locality "in Indiis", instead of the more explicit "Oceano Atlantico prope Insulam Adscensionis" of Solander's earlier manuscript, marked "M.B." and probably described from a specimen in the series of shells from the Island of Ascension, known to have been in the Sloane collection.

TIERRA DEL FUEGO

On the 20th January, 1769, Banks and his party explored the beaches of this desolate place, and the results were recorded in his *Journal* as follows: "This morning was very fine, so much so that we landed without difficulty at the bottom of the bay and spent our time very much to our satisfaction in collecting shells and plants. Of the former we found some very scarce and fine, particularly limpets; of several species of these we observed (as well as the shortness of our time would permit) that the limpet with a longish hole at the top of his shell is inhabited by an animal very different from that which has no hole. Here were also some fine whelks, one particularly with a long tooth, and an infinite variety of *Lepades*, *Sertulariae*, *Onisci*, etc., in much greater variety than I have anywhere seen. But the shortness of our time would not allow us to examine them, so we were obliged to content ourselves with taking specimens of as many of them as we could in so short a time scrape together". Later in the same day Banks remarks that they saw few fish fit to eat, but "shell-fish, however, are in the greatest abundance, limpets, mussels, clams, etc., but none of them delicate, yet such as they were we did not despise them" (*Journal*, pp. 55 and 57).

Banks was quite correct in his observation of the animal inhabiting the "limpet with a longish hole at the top of his shell" (*Fissurella picta* Lamarck), for the tufted mantle margins and apical opening of the Fissurellidae are far more striking than the

simpler animals and imperforate shells of the Patellidae. The whelk with the long tooth was undoubtedly *Acanthina calcar* (Martyn)—the *Buccinum monodon* of Solander's manuscript and the *Portland Catalogue* (Lots 372 and 3093, both from Tierra del Fuego)—in which the compiler refers the species to Martyn's figure 10e. The tooth referred to is a projection on the outer lip of the shell (similar to that found in many of the Muricidae) said to assist these predatory molluscs to open the shells of lamellibranchs.

Fortunately the two shells particularly mentioned by Banks are still in the collection, but unlabelled, and the "Mussels and Clams" are also well represented among the specimens from Tierra del Fuego listed below.

<i>Fissurella picta</i> Lamarck	.	.	.	—	—	—
<i>Acanthina calcar</i> (Martyn)	.	.	.	<i>Buccinum monodon</i> Sol. MSS. Terra del Fuego.		
<i>Buccinulum antarcticum</i> Reeve	.	.	.	—	—	—
<i>Trophon philippianus</i> Dunker	.	.	.	—	—	—
<i>Aulacomya ovalis</i> (Lamarck)	.	.	.	T. del Fuego.		
<i>Mytilus chorus</i> Molina	.	.	.	—	—	—
<i>Mytilus edulis</i> Linné	.	.	.	Terra del Fuego.		
<i>Modiolarca trapezina</i> (Lamarck)	.	.	.	<i>Mytilus gibbus</i> Sol. MSS. T. de F. J.B.		
<i>Marcia exalbida</i> (Dillwyn)	.	.	.	<i>Venus</i> . * * *		
				Terra del Fuego.		

The Tierra del Fuego specimens are characteristic of the locality and call for little remark; the large *Mytilus chorus* polishes remarkably well, and its fine purple and mauve tinted valves adorned most of the older collections. From Solander's manuscript description the large *Marcia exalbida* was extremely common, and must have been principal among the clams said by Banks to be in great abundance, and not to be despised as food.

OTAHEITE (TAHITI)

The stay at Tahiti was a long one (13th April to 12th July, 1769), with ample opportunity for collecting, but little information regarding shells was given by Banks or Cook in their Journals, for their time was much taken up by preparations for observing the transit of *Venus*, and studying the manners and customs of the people. The few representative species of shells in the collection show once again that the larger and more attractive shells were probably gathered by others, for there is no shortage of specimens from Otaheite in the catalogues of the period.

One interesting reference to the mollusca is recorded by Banks, for on the 30th May, 1769, he notes: "Carpenters employed to-day in repairing the long-boat, which is eaten in a wonderful manner; every part of her bottom is like a honey-comb, some of the holes being an eighth of an inch in diameter, such progress has this destructive insect made in six weeks". Banks was of course referring to the ravages of a species of Ship Worm (*Teredo*), an enemy dreaded by the early voyagers, whose vessels were constructed almost entirely of wood. No Banks specimens of this *Teredo* are available, but Pacific species are known to be particularly active from April to October (Ricketts & Calvin, 1948, p. 252).

Shells of the Conidae form the bulk of the following list of Tahiti shells, several of which were described for the first time by Solander in manuscript, and later adopted by Bruguière from the *Portland Catalogue* or from named specimens purchased from Humphrey.

<i>Modiolus auriculatus</i> Krauss . . .	<i>Mytilus modiolus</i> Otaheite.
<i>Modiolus metcalfei</i> Hanley . . .	<i>Mytilus modiolus</i> Otaheite.
<i>Chlamys pallium</i> (Linné) . . .	<i>Ostrea pallium</i> . Otaheite.
<i>Amphiperas tortilis</i> (Martyn) . . . (= <i>costellata</i> Lamarck)	<i>Bulla imperialis</i> Sol. MSS. Otaheite.

Dillwyn (1817, p. 473) gave priority to Solander's manuscript name, first printed in the *Portland Catalogue* (Lot 3391. *Bulla imperialis*, or pink mouth'd poached egg, from the *Friendly Isles*), but this cannot be accepted, as no reference was given to a figure. This species is the *Cypraea tortilis* figured by Martyn (1788, t. 60), also from the *Friendly Isles* and included in Dillwyn's synonymy.

<i>Cypraea ventriculus</i> Lamarck . . .	<i>Cypraea achatina</i> Sol. MSS. Otaheite.
<i>Cypraea caputserpentis</i> Linné . . .	<i>Cypraea caputserpentis</i> L.
<i>Bullaria ampulla</i> (Linné) . . . Large Tahiti form . . .	<i>Bulla ampulla</i> L. var. A. Oceano Pacifico.
<i>Conus textile</i> Linné . . .	<i>Conus textilis</i> . Otaheite.
<i>Conus striatus</i> Linné . . .	<i>Conus striatus</i> . Otaheite. J.B., D.S.
<i>Conus litteratus</i> Linné . . .	<i>Conus literatus</i> . Otaheite.
<i>Conus sponsalis</i> Bruguière . . .	<i>Conus sponsalis</i> Sol. MSS. Otaheite. Byron Pacific Oc.
<i>Conus tessulata</i> Born . . .	<i>Conus tessulata</i> . Otaheite. J.B.
<i>Conus arenatus</i> Bruguière . . .	<i>Conus arenatus</i> Sol. MSS. Otaheite.
<i>Conus eburneus</i> Bruguière . . .	<i>Conus glaucus</i> L. Otaheite.
<i>Conus pulicarius</i> Bruguière . . .	<i>Conus pulicarius</i> Sol. MSS. Oceano Pacifico Otaheitensis.
<i>Conus ebraeus</i> Linné . . .	<i>Conus ebraeus</i> L. Oceano Pacifico Otaheitensis.
<i>Conus vermiculatus</i> Lamarck . . .	<i>Conus princeps</i> Martini. Oceano Pacifico Otaheitensis.

Before following the course of the "Endeavour" south to New Zealand, there is a specimen of *Lathirus prismaticus* (Martyn) to be recorded from the Banks collection,

which may suitably follow the Tahiti series. The refractory powers of the periostracum of this species caused a great deal of interest to the early collectors. It was first figured by Martyn, (1784 1, fig. 2b) as *Buccinum prismaticum*, from the Friendly Islands, no doubt brought back from Cook's second voyage. Martyn inserted a leaflet in the first volume of his work headed *Observations on the Explanatory Table*, the special observations on fig. 2 reading as follows :

"A very singular appearance, hitherto never observed of any other shell, is produced on this, by dipping it in water. The many small risings, or ribs of the shell, from a brown, are in a few moments changed to a rich and lucid blue, which beautiful effect again gradually dies away, as the shell becomes dry . . . The shell is shown in both its states."

Martyn succeeded in conveying this lucid blue of the nodules of the wet shell, by having his figures coloured with thick dabs of an almost metallic blue paint, held together with touches of gum arabic, a treatment that has caused the colour to crack and flake off in some copies of the plate. Solander labelled this unusual shell *Buccinum Iris* in the Portland collection, for it appears at least three times in the printed catalogue, with a reference to Martyn's figure in each case, obviously added by Humphrey.

Lot 301. *Buccinum Iris*, S. Martyn, Vol. 1, fig. 2b, the epidermis of this singular species when wet is of various colours, and is exceeding scarce
(Sold for £2.18.0 cash.)

Lot 1455. *Buccinum Iris*, S. Martyn, Vol. 1, fig. 2b, very fine and extremely scarce
(Sold for £2.2.0 to Humphrey).

Lot 3356. Four curious species of *Buccina* viz three of *Purpuratum*, one of *Aulicum* one of *Iris*, S. Martyn, Vol. 1, fig. 2b and four singular *Murices*, all rare
(Sold for £1.12.0 cash.)

The prices paid for this small but attractive shell indicate the interest aroused at the time, not only here, but on the continent, for Chemnitz (vol. x, p. 284, 1788) follows a repetition of Martyn's observations with the information that Spengler paid as much as three guineas for a single specimen. To whom this was paid is not recorded by Chemnitz, but there is little doubt that it was to the purchaser of Lot 1455 noted above.

Dillwyn (1817, p. 741), records the species as the *Murex prismaticus* of Chemnitz, and repeats Humphrey's description of its iridescent properties. He later complains that *Buccinum Iris* does not appear among Solander's manuscripts in Sir Joseph Banks's library, an omission now known to be due to the fact that Solander left the genus *Buccinum* incomplete.

The Banks specimen of *L. prismaticus*, when placed in water, shows the iridescent colour only near the lip of the shell, due perhaps to the perishing of the periostracum during the last 180 years, but shells from the Cuming and Gray collections, gathered over a century ago, still show a fine blue iridescence when placed in water.

NEW ZEALAND

As in the account of Tahiti, there is little of note regarding shells in Banks's *Journal* during the circumnavigation of New Zealand (October 8th to March 31st, 1770), but there are one or two references to the mollusca as a welcome source of extra food; accordingly, on the 10th November, a meal of broiled shags was followed by one of a different kind, supplied to Banks and his party at a small village in Mercury Bay (N.W. Coast of N. Island), where they were "most civilly received by the inhabitants, who treated us with hot cockles, or at least a small flat shell-fish (*Tellina*), which was most delicious food". This was probably *Amphidesma ventricosum* (Gray), the Toheroa of New Zealand, said by Suter (1913, p. 959) to be particularly plentiful on the northern shores, especially the west coast, and still considered a great delicacy. The next day, an oyster bank was found, and the "Endeavour's" longboat was filled with "as good oysters as ever came from Colchester, and of about the same size . . . the ship's company, I sincerely believe, did nothing but eat from the time they came on board until night". These were without doubt the famous Auckland rock oysters, *Ostrea glomerata* Gould, common to the Hauraki Gulf, and still consumed in large quantities from May to September (Suter, 1913, p. 891).

From Banks's concluding remarks on New Zealand (*Journal*, p. 227), where he notes the plentiful supply of excellent oysters, cockles, clams and many other sorts of shell-fish, etc., one would have expected rather more than the eight typical New Zealand shells found in his collection and listed below, but again it is evident that botany was his main pursuit, molluscs being attractive mainly as a source of extra food.

<i>Notirus reflexus</i> (Gray)	.	.	.	<i>Venus</i> . ***
				Nova Cambria (in error?).
<i>Aulacomya maoriana</i> Iredale	.	.	.	<i>Mytilus</i> ***
= <i>magellanicus</i> Auct.				Novae Zelandiae.
				N.Z. J.B., D.S.
<i>Mytilus canaliculus</i> Martyn	.	.	.	— — —
				N.Z.
<i>Musculus impactus</i> (Hermann)	.	.	.	<i>Mytilus gibbus</i> Sol. MSS.
(fig. 4, a, b, c)				N.Z.
<i>Chione stutchburii</i> (Wood)	.	.	.	<i>Venus antiquata</i> Sol. MSS.
				Nova Cambria (in error?). J.B.
<i>Struthiolaria papulosa</i> (Martyn)	.	.	.	<i>Murex</i> — — —
<i>Buccinulum multilineum</i> Powell	.	.	.	<i>Murex</i> . N.Z.
(fig. 9)				
<i>Cymatium parthenopeus</i> (von Salis)	.	.	.	<i>Murex olearium</i> .

Notable species among these few New Zealand shells are the very characteristic *Chione stutchburii* (Wood), and *Musculus impactus* (Hermann) (plate 15). The former was given the locality Nova Cambria (New South Wales) by Solander, probably in error, for no records of its occurrence there are known. *Chione stutchburii*, frequently attributed to Gray, was first figured by William Wood (1828, pl. 2, fig. 4), from a specimen in the British Museum, with the locality Sandwich Islands. How this locality came to be given to this typical New Zealand species is now impossible to

say, but there are certainly two specimens attached to a tablet, with the locality Sandwich Islands altered in pencil to New Zealand, and it seems quite likely that it was from this tablet that Wood took his figured specimen, probably brought back from one of Cook's voyages.

The clusters of *Musculus impactus*, one of which is shown in fig. 5, are of great interest; fresh and as firm as though collected recently, they are part of the first consignment to be brought to this country in 1771, their similarity, except in size, to our own *Musculus discors* (Linné), causing much confusion among contemporary authors. Solander first confused it with his own *Mytilus gibbus* in the Banks Collection, then renamed it in his manuscript, where it will be seen to have been later altered to the *M. discors* Linné (fig. 7). Da Costa (1778, p. 222-3) concludes his description of the Linnean *discors* as follows:

"All that Linné had seen, as well as all those found on our coasts, are very small, thin, and delicate; but a kind no wise different, except in size and colour, being larger than a great walnut, and quite brown, was brought from the southern hemisphere by that great and national honour Capt. Cook, the circumnavigator, in the late expeditions for the discovery of new countries. These also were intirely *unknown* to all our collectors; and, as they only differ in size, thickness, and colour, but are exactly the same in structure, way of life, and other particulars, as these of our coasts, is it a *distinct species*, or *variety* only?"

Donovan, in *The Natural History of British Shells* (Vol. 1, 1804, text to pl. xxv) also concludes his description of *M. discors* in the same vein, remarking that, according to Gmelin "it is likewise noted as a native of the Southern Ocean", and then he proceeds to repeat the observations of Da Costa *verbatim*, as a footnote, adding that "As a figure of this very analogous kind may be acceptable, it is introduced in the annexed plate at fig. 2".

Gmelin certainly noted that *M. discors* occurred also in the Southern Ocean, and included in his synonymy a reference to Hermann, in Volume XVII of the *Naturforscher* (1782), wherein this New Zealand species was clearly described as *Mytilus impactus*, with quite good figures (pl. iii, figs. 5-8), but the idea that it was only a large form of the Linnean *discors* persisted, partly due, no doubt, to the habit of forming a nest of byssal threads, indulged in by both species. The systematic position of *Musculus impactus* was in doubt for many years, for according to Suter's synonymy (1913, p. 869), the species has been referred by various authors to *Mytilus Modiola*, *Crenella*, *Modiolaria* and *Modiolarca*.

AUSTRALIA (NEW SOUTH WALES AND QUEENSLAND)

Having satisfactorily proved that New Zealand, the land seen by Tasman in 1642, was a series of islands and not the edge of a vast Southern continent, as predicted by the early geographers, the "Endeavour" progressed in a westerly direction, eventually sighting land (South of Cape Howe), on the 19th April, 1770, the first landing being made on the afternoon of the 28th, at Sting Ray Bay (later renamed Botany Bay).

Much botanical collecting was done by Banks and Solander at this classical locality, and it appears that shells were also taken here, notably several *Bullaria botanica* Hedley, one of the commonest species on the tidal flats of New South Wales. On the 23rd May, a party went ashore further north, at Bustard Bay, where, apart from shooting a large bustard, which provided the next day's dinner, and observing various other birds, Banks noted that on the mud banks, under the mangrove trees were "innumerable oysters, hammer oysters, and many more sorts, among which were a large proportion of small pearl oysters. Whether the sea in deeper water might abound with as great a proportion of full-grown ones, we had not an opportunity to examine, but if it did, a pearl fishery here must turn out to immense advantage".

The main Australian pearl fisheries are now carried on more to the north and north-west (Torres Strait, Darwin, Broome, etc.) where the larger and more valuable species occur. The small pearl shells mentioned by Banks, of which several are in his collection (fig. 14), are typical of Port Hacking, Broken and Botany Bays, and Sydney, "frequenting sandy mud-flats in tidal bays and inlets along the coast" (Allen, 1950, p. 267). As already noted, examples of the Hammer Oysters (*Malleus*) mentioned by Banks, were also brought back and duly described by Humphrey, Donovan and other authors.

Although many specimens in the Banks Collection were not actually localized by Solander, it is only reasonable to suppose that the bulk of them were brought back from the "Endeavour" voyage, for while many of the species, especially the Cowries, are common to the Indo-West-Pacific, and may have been collected earlier by Captains Byron or Wallace, it cannot be entirely due to coincidence that so many of these same species have been recorded from New South Wales and Queensland, particularly from the coastal districts of the latter, now known, appropriately enough, as the Banksian Province of the Australian Region. Indeed, Iredale (1939b, p. 211) states quite definitely that "every shell known from Queensland before 1820, must have been procured by Cook's party". This statement seems to confirm the view that the single unlabelled specimen of the dorsally speckled form of *Cypraea humphreyi* Gray, said by the same author (1939, p. 126) to be common only to Queensland and New South Wales, must have been brought back by the "Endeavour" in 1771.

This small Cowry is presumably one of the shells collected on the Barrier Reef during the prolonged stay (18th June–10th July, 1770), while repairs were being made to Cook's vessel, after the accident that so nearly proved fatal to all concerned. In his *Journal* (Ed. 2, p. 144) Sydney Parkinson tells how "During the time we stayed here we picked up a great many natural curiosities from the reef we struck upon, consisting of a variety of curious shells, most of which were entirely new to Mr. Banks and Dr. Solander".

During this period, the "Endeavour's" pinnacle was often busy searching for a passage through the shoals, and on one of these trips the crew landed on a dry reef "where they found great plenty of shell-fish, so that the boat was completely loaded, chiefly with a kind of cockle (*Chama gigas*) one of which was more than two men could eat; many indeed were larger. The coxswain of the boat, a little man,

declared that he saw on the reef a dead shell of one so large that he got into it, and it fairly held him" (Banks's *Journal*, p. 284). This account was not exaggerated, for the Giant Clams (*Tridacna*), grow to enormous sizes on the Barrier Reef, and have been known to reach over three feet in length and weigh anything up to 500 lb. (Allen, 1950, p. 321). Dampier also noted the occurrence of these large clams during his visit to the north-west coast in 1699.

List of Australian Shells in the Banks Collection with occasional remarks.

<i>Modiolus auriculatus</i> Krauss	.	.	— — —
<i>Amygdalum arborescens</i> (Dillwyn)	.	.	<i>Mytilus ornatus</i> Sol. MSS.
<i>Brachidontes hirsutus</i> (Lamarck)	.	.	New Holland.
(fig. 15)			
<i>Septifer bilocularis</i>	.	.	Marked D.S. on label.
<i>Lithophaga teres</i> Philippi	.	.	<i>Mytilus lithophagus</i> .
<i>Mytilus planulatus</i> Lamarck	.	.	New Holland.
<i>Aulacomya maoriana</i> Iredale	.	.	<i>Mytilus discors</i> Linn.
			New Holland.
<i>Crenatula nigrina</i> Lamarck	.	.	— — —
<i>Electroma georgiana</i> (Quoy & Gaimard)	.	.	— — —
<i>Electroma punctulata</i> (Reeve)	.	.	— — —
<i>Austrapteria lata</i> (Gray)	.	.	<i>Mytilus hirundo</i> L.
<i>Pinctada reeveana</i> (Dunker)	.	.	New Holland.
<i>Pinctada margaritifera</i> (Linné)	.	.	" "
<i>Pinctada vulgaris</i> (Schumacher)	.	.	" "
<i>Pinctada vulgaris panasesae</i> Jameson	.	.	— — —
<i>Pinna muricata</i> Linné	.	.	<i>Pinna nebulosa</i> Sol. MSS.

The last named may be the *Quantulopinna delsa* of Iredale, who discusses the species at length (1939*b*, p. 311). In this Great Barrier Reef Report, much interesting data will be found relating to the other species in this list, but as his single figure of *Q. delsa* (pl. iv, fig. 16) shows little difference from accepted forms of the Linnean *P. muricata* recently examined, the older name has been retained for the Banks specimens.

<i>Chlamys asperrimus</i> (Lamarck)	.	.	— — —
<i>Lima (Stabilima) tadena</i> Iredale	.	.	South Seas.
<i>Lima (Austrolima) nimbifer</i> Iredale	.	.	Nova Cambria.
<i>Saxostrea commercialis</i> Iredale & Roughley	.	.	New Holland.

This specimen of *S. commercialis* is attached to a fair-sized shell of *Pyrazus ebeninus*, a common gastropod found on the mud-flats of New South Wales and Queensland (fig. 11). The shell of the oyster is typical of the stunted and thickened seashore form described by Iredale (1939*b*, p. 399), and is the common commercial oyster of Australia, which is particularly abundant in New South Wales where large numbers are marketed annually. An excellent description with photographs of modern oyster culture, foreshadowed by the enjoyment of this same species of Australian

oyster by Banks and his party, is given by Dakin in his book on the Australian seashores (1953, pp. 289-92).

Batissa triquetra Deshayes . . . *Venus erosa* Sol. MSS.

This North Australian and Queensland species, of which there are two small but fresh-looking specimens in the collection, was first described in manuscript by Solander as *Venus erosa*, with the authentic locality Nova Cambria, and marked J.B. This same locality is marked in pencil on the interior of both valves of one specimen (fig. 10). The species appears twice in the *Portland Catalogue*, both entries worded differently.

Lot 1603 (p. 71). *Venus Erosa*, S. a large and singular fresh-water Bivalve, from New South Wales, extremely rare.

Lot 3961 (p. 186). *Venus Erosa*, S. a very curious undescribed species of freshwater bivalve, with a black epidermis, and fine purple inside, the country unknown, very rare.

Even more curious is the obvious discrepancy between these two entries, but as they are separated by over 2,000 separate lots, it must be attributed to the flagging zeal of the compiler. Dillwyn (1817, p. 177) places the *Venus erosa* of Solander in the synonymy of *Venus coaxans* Gmelin, for which he quotes the Chemnitz locality "Ceylon", although he had seen the more reliable Nova Cambria and New South Wales of the Solander manuscripts and *Portland Catalogue*.

The first part of Dillwyn's description is certainly applicable to Gmelin's *Venus coaxans*, but he goes on to say: "I suspect that this is the *Venus erosa* of Solander, and Mr. Humphrey describes the epidermis in one of the specimens in the Portland cabinet to have been black, of which colour it had probably been stained by the mud, as is frequently the case with many other fresh-water shells." This nearly black epidermis, however, is a distinguishing feature of the *Batissa triquetra* Deshayes, as opposed to the olive brown of *Geloina* (= *Cyrena*) *coaxans* (Gmelin), both species occurring together among the mangroves of Queensland (Allen, 1951, p. 403).

In the extract from p. 177 of Dillwyn's text, it is of importance to note the reference to Humphrey as the author of the *Portland Catalogue* (see p. 88).

<i>Codakia rugifera</i> (Reeve)	.	.	.	— — —
<i>Codakia tigrina</i> (Linné)	.	.	.	<i>Venus tigrina</i> Linn.
<i>Corbis fimbriata</i> (Linné)	.	.	.	<i>Venus fimbriata</i> L.
				Nova Cambria. J.B., D.S.
<i>Liochoncha castrensis</i> (Linné)	.	.	.	<i>Venus castrensis</i> L.
<i>Lioconcha varians</i> (Hanley)	.	.	.	<i>Venus juvenca</i> Sol. MSS.
				Nova Cambria. J.B.
<i>Gafrarium scripta</i> (Linné)	.	.	.	<i>Venus scripta</i> var. B. D.S.
(fig. 8.)				
<i>Gafrarium pectinatum</i> (Linné)	.	.	.	<i>Venus pectinata</i> L.
				N.H. J.B., D.S.
<i>Gafrarium tumidum</i> (Röding)	.	.	.	<i>Venus expansa</i> Sol. MSS.
				Nova Cambria. J.B., D.S.

<i>Pitaria pellucida</i> (Lamarck)	.	.	.	— — —
<i>Macrocallista maculata</i> (Linné)	.	.	.	<i>Venus maculata</i> L. var. A. Nova Cambria.
<i>Dosinia anus</i> Philippi	.	.	.	<i>Venus lincta</i> . N.H. Nova Cambria.
<i>Antigona puerpera</i> (Linné)	.	.	.	<i>Venus puerpera</i> L. J.B.
<i>Antigona reticulata</i> (Linné)	.	.	.	<i>Venus reticulata</i> L. Nova Cambria. N.H.
<i>Chione marica</i> (Linné)	.	.	.	— — —
<i>Chione foliacea</i> (Philippi)	.	.	.	<i>Venus dysera</i> L. Nova Cambria.

The Banks specimen of this shell was identified from specimens labelled *foliacea* in the British Museum collection, and is one of the species belonging to the *Venus dysera* complex discussed very fully by Dodge (1952, pp. 89-92)

<i>Paphia philippinarum</i> (Reeve)	.	.	.	<i>Venus decussata</i> L. var.
<i>Asaphis deflorata</i> (Linné)	.	.	.	<i>Venus deflorata</i> L.

Linné confined the distribution of *Asaphis deflorata* only to Europe, although it had been recorded from Barbadoes and accurately figured by one of his chief mentors, Martin Lister (Lib. III, 1687, pl. 425). Solander recorded several localities and described no less than five colour varieties from the Indian Ocean, Japan, Pegu, Suratte and Malacca, localities now recognized to have been obtained from the Sloane collection and catalogues (Wilkins, 1953, p. 9 *et seq.*); but the locality New Zealand, written on one of the ten specimens of *A. deflorata* in the Banks collection, was probably intended for New Holland.

<i>Notocorbula tunicata</i> (Hinds)	.	.	.	<i>Venus</i> . ***
<i>Cerithideopsis fluviatilis</i> Potiez	.	.	.	New Holland.
<i>Pyrasus ebeninus</i> (Bruguière)	.	.	.	<i>Murex aluco-nigra</i> . (fig. 11) New Holland.

P. ebeninus is still known to Australian conchologists as the Hercules Club, an ancient vernacular name which appears several times in the Portland and other early catalogues. It was first named and figured by Martyn in the *Universal Conchologist* as *Clava Herculea* (vol. 1, 1784, f. 13) from a specimen in the Humphrey collection; it is also known as the Mud Whelk, the species being very common on the sandy mud flats round Sydney, Botany Bay and the upper reaches of Port Jackson. The presence of several specimens of this characteristic New South Wales shell in the Banks collection confirms Allan's remark (1951, p. 87), that "the Hercules Club was amongst the first shells to be taken back to England from Australia, being taken there by Captain Cook".

<i>Cerithium nodulosum</i> Bruguière	.	.	.	<i>Murex aluco</i> .
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The *C. nodulosum* or Coral Reef Creeper, another species of Hercules Club, was frequently confused with the smaller *Pyrasus ebeninus* by early authors. It is essentially a coral reef form, particularly common on the Great Barrier Reef.

<i>Cerithium tuberculatum</i> (Linné)	.	.	<i>Murex tuberculatus</i> . New Holland.
<i>Cerithium morus</i> Lamarck	.	.	New Holland.
<i>Cerithium echinatum</i> Lamarck	.	.	<i>Murex aluco</i> .
<i>Cerithium (Aluco) aluco</i> (Linné)	.	.	<i>Murex aluco</i> Linn.
<i>Cerithium (Rhinoclavis) vertagus</i> (Linné)	.	.	<i>Murex vertagus</i> .
<i>Cerithium (Rhinoclavis) obeliscus</i> Brug.	.	.	<i>Murex turris chinensis</i> .
<i>Cerithium (Rhinoclavis) lineatum</i> Brug.	.	.	<i>Murex turris obeliscus</i> . New Holland.
<i>Cerithium (Rhinoclavis) asper</i> (Linné)	.	.	<i>Murex granulatus</i> Sol. MSS. New Holland.
<i>Amphiperas ovum</i> (Linné)	.	.	<i>Bulla ovum</i> .

The last named species, known commonly as the White Egg Cowry, is used in the Pacific as a canoe ornament. Amongst other places it is recorded from the Solomon and Torres Straits Islands, where it is reported by Jackson (1917, p. 175) to be worn as an ornament for the neck, breast or leg. Spectacular pendants composed entirely of *A. ovum* form an important part of the regalia of the aborigine Elders of Australia (Allen, 1951, pl. 13).

<i>Calpurnus verrucosus</i> (Linné)	.	.	<i>Bulla verrucosa</i> .
<i>Pustularia cicercula</i> (Linné)	.	.	<i>Cypraea cicercula</i> .
<i>Pustularia globulus</i> (Linné)	.	.	— — —
<i>Pustularia childreni</i> (Gray)	.	.	— — —

The remaining Cypraeidae found in the Banks collection are listed under the genera used by Schilder & Schilder (1938-39), and as most of the species are well-known, their numerous sub-genera have been omitted for the sake of brevity. As already noted, many of these Cowries are common Indo-West-Pacific species, but all those included below have been recorded from New South Wales and Queensland.

<i>Staphylaea staphylaea</i> (L.)	.	.	<i>Cypraea staphylaea</i> var. A.
<i>Staphylaea facifer</i> Iredale	.	.	<i>C. oryza</i> Sol. MSS.
<i>Staphylaea nucleus</i> (L.)	.	.	— — —
<i>Erosaria helvola</i> (L.)	.	.	<i>Cypraea helvola</i> L.
<i>Erosaria poraria</i> (L.)	.	.	— — —
<i>Erosaria erosa</i> (L.)	.	.	— — —
<i>Monetaria annulus</i> (L.)	.	.	<i>Cypraea annulus</i> .
<i>Monetaria moneta</i> (L.) nodulous form	.	.	<i>Cypraea moneta</i> var. C.
<i>Monetaria obvallata</i> (Lamarck)	.	.	<i>Cypraea moneta</i> .
<i>Erronea onyx</i> (L.) Juvenile	.	.	<i>Cypraea onyx-dubius</i> .
<i>Erronea erronea</i> (L.)	.	.	New Holland.
<i>Erronea caurica</i> (L.)	.	.	— — —
<i>Palmadusta punctata</i> (L.)	.	.	— — —
<i>Palmadusta asellus</i> (L.)	.	.	<i>Cypraea asellus</i> L.
<i>Palmadusta clandestina</i> (L.)	.	.	— — —
<i>Palmadusta humphreyi</i> (Gray)	.	.	— — —
<i>Palmadusta ziczac</i> (L.)	.	.	<i>Cypraea zikzak</i> .
<i>Evanaria hirundo</i> (L.)	.	.	<i>Cypraea hirundo</i> L. J.B.
<i>Evanaria coffea</i> (Sowerby)	.	.	<i>Cypraea umbilicata</i> Sol. MSS.
<i>Blasicrura chinensis</i> (Gmelin)	.	.	<i>Cypraea morbillosa</i> Sol. MSS.
<i>Cribraria teres</i> (Gmelin)	.	.	— — —

<i>Cribraria cribraria</i> (L.)	<i>Cypraea cribraria</i> L.
<i>Luria isabella</i> (L.)	<i>Cypraea isabella</i> L.
<i>Callistocypraea testudinaria</i> (L.)	<i>Cypraea testudinaria</i> .
<i>Talparia argus</i> (L.)	<i>Cypraea argos</i> .
<i>Talparia talpa</i> (L.)	— — —
<i>Mauritia arabica</i> (L.)	<i>Cypraea arabica</i> .
<i>Mauritia arabica</i> (L.) Juvenile	<i>Cypraea amethystea</i> L.
<i>Mauritia maculifera</i> Schilder. Juv. . . .	<i>Cypraea amethystea</i> L.

Hanley (1855, p. 184) dealt very briefly with the *Cypraea amethystea* of Linné, saying that the specimen marked for the species in the Linnean cabinet was an example of the *C. histrio* of authors, having the outer coating of the dorsal surface artificially removed. A recent examination of the type specimen reveals that it is a typical and mature *C. arabica* L., rubbed or worn right down to the violet inner layer, and sufficiently highly polished to give the appearance of natural enamel to a not too critical eye.

Solander accepted *C. amethystea* as a good species, to which he referred specimens now seen to be juveniles of the *arabica* group of Cowries; these were accurately described in his manuscript and marked as present in the Banks and Portland collections. He had apparently seen beach-worn or polished shells of *C. arabica*, showing a purple or violet dorsum, and placed them among his numerous varieties of that species (*C. arabica* var. *E. testa detrita dorso violaceo*, M.C.P.). Dillwyn (1817, p. 439) also considered the Linnean *C. amethystea* to be the juvenile stage of *C. arabica*, listing it as such in his synonymy, and stating that young shells are bluish grey, variously clouded or banded with brown; later the back becomes brownish or dull blue, in which stage of its growth it is known by the name of *C. amethystea*, or Smoke Cowry. Then follows the suggestion that Linné was not aware of the different appearances of the Cowries at different periods of growth "and from want of this knowledge, he has described the present species under three different names."

The three names referred to by Dillwyn were *C. arabica*, which still stands, *C. amethystea*, an error due to polishing, and *C. fragilis*, an intermediate stage of the first. In 1845 Reeve (*Cypraea*, sp. 2) followed Dillwyn in attributing the Linnean *C. amethystea* to juveniles of *C. arabica*; and only recently Dodge (1953, p. 70-71), working at long range, confessed his difficulty in identifying the species from the available literature, even doubting the veracity of the *dorso violaceo* of Linné's description. Three of the four authors mentioned above did not see the Linnean holotype; had they done so, the error in giving a name to this mature but maltreated shell would have become immediately apparent. Incidentally, Dodge (p. 70) was unable to confirm the occurrence of worn *arabica* group Cowries showing a violet dorsum, but beach-worn specimens of at least two species recently examined show violet coloration of the dorsal area, which would equal the intensity of the Linnean shell, if highly polished.

<i>Mauritia maculifera</i> Schilder	<i>Cypraea arabica</i> var. <i>C</i> .
<i>Mauritia histrio</i> (Gmelin)	<i>Cypraea arabica</i> var. <i>D</i> .
<i>Mauritia mauritiana</i> (Linné)	<i>Cypraea mauritiana</i> .
<i>Mauritia mauritiana</i> , Juvenile	<i>Bulla non-umbilicata</i> .
<i>Cypraea tigris</i> (Linné), Juvenile	<i>Bulla cypraea</i> .

Dillwyn's statement regarding Linné's lack of knowledge of the growth stages in *Cypraea*, can only be related to intermediate stages, for in the description of his *Bulla cypraea* in the Tenth and Twelfth editions of the *Systema Naturea* he indicates, by a cross reference, that the shell is a larval, or early stage of *Cypraea*. *Bulla cypraea* was not numbered as a species in the Tenth Edition, being inserted in *Bulla* " as a precautionary measure, because the less experienced naturalists would naturally search for the names of the young *Cowries* in that genus " (Hanley, 1855, p. 209).

<i>Cypraea Vanelli</i> L.	.	.	.	.	<i>Cypraea lynx</i> .
<i>Cypraea Vanelli</i> L., Juvenile	.	.	.	.	<i>Cypraea vanelli</i> L.

Cypraea Vanelli was described by Linné from an intermediate stage of his own *C. lynx*, which appeared on the succeeding page of the Tenth Edition of the *Systema* (p. 721, 303), a fact overlooked by Dillwyn, who allowed it to remain as a good species. Dodge (1953, p. 72) suggested that the substitution of *C. Vanelli* for the well-known *C. lynx* would unnecessarily confuse the nomenclature, but *Vanelli* had already been substituted by Iredale (1935, p. 110), evidently on page precedence, and now appears in the Australian literature, without comment (Iredale, 1939a, p. 299; Allen, 1951, p. 126).

<i>Cypraea vitellus</i> L.	.	.	.	.	<i>Cypraea vitellus</i> .
<i>Cypraea carneola</i> L.	.	.	.	.	<i>Cypraea carneola</i> .
<i>Cymatium pyrum</i> (L.)	.	.	.	.	<i>Murex pyrum</i> .
<i>Cymatium tripus</i> (Lamarck)	.	.	.	.	<i>Murex femorale</i> .
<i>Cymatium parthenopeus</i> (von Salis)	.	.	.	.	<i>Murex olearium</i> .
<i>Cymatium chlorostoma</i> (Lamarck)	.	.	.	.	<i>Murex</i> .
(fig. 13.)					
<i>Distortrix anus</i> (L.)	.	.	.	.	<i>Murex anus</i> .
<i>Bursa albivaricosa</i> (Reeve)	.	.	.	.	<i>Murex rana</i> .
<i>Bursa granifera</i> (Lamarck)	.	.	.	.	<i>Murex gyrinus</i> L.
<i>Bursa rubecula</i> (L.)	.	.	.	.	<i>Murex rubecula</i> L.
<i>Pirula ficus</i> (L.)	.	.	.	.	<i>Bulla ficus</i> L.
<i>Murex monodon</i> Sowerby	.	.	.	.	<i>Murex ramosus</i> L.
<i>Murex adustus</i> Lamarck	.	.	.	.	<i>Murex ramosus</i> .
<i>Murex torrefactus</i> Reeve	.	.	.	.	<i>Murex ramosus</i> .
<i>Murex ternispina</i> Lamarck	.	.	.	.	<i>Murex tribulus</i> .
<i>Murex haustellum</i> L.	.	.	.	.	<i>Murex haustellum</i> .
<i>Nucella amygdala</i> (Kiener)	.	.	.	.	<i>Murex</i> .
<i>Phos senticosa</i> (Linné)	.	.	.	.	<i>Murex senticosus</i> .
<i>Engina alveolata</i> Kiener	.	.	.	.	— — —
<i>Galeodes pugilina</i> (Linné)	.	.	.	.	<i>Murex pugilinus</i> .
<i>Megalotractus aruanus</i> (L.), Juvenile	.	.	.	.	— — —

M. aruanus, the False Trumpet shell of the Indo-Pacific and Northern Australia may be over two feet in shell length when fully grown, and is used by the natives as a very efficient water carrier, the long canal serving as a spout. The smooth texture of the shell makes it particularly suitable for the manufacture of personal ornaments. (Allen, 1951, p. 158).

<i>Lathirus polygonus</i> (Linné)	.	.	.	<i>Murex</i> or <i>Fusus polygonus striatus</i> .
<i>Lathirus gibbulus</i> (Linné)	.	.	.	<i>Murex</i> or <i>Fusus polygonus striatus</i> .
<i>Lathirus nodatus</i> (Quoy & Gaimard)	.	.	.	<i>Murex</i> .
<i>Peristernia nassatula</i> (Lamarck)	.	.	.	<i>Murex</i> .
<i>Peristernia ustulata</i> Reeve	.	.	.	<i>Murex</i> .
<i>Fasciolaria filamentosa</i> Lamarck	.	.	.	— — —
<i>Colus colus</i> (Linné)	.	.	.	<i>Murex colus</i> .
(fig. 12)				
<i>Fusus tuberculatus</i> Lamarck	.	.	.	<i>Murex colus</i> .

In concluding this list of *Murex* it should perhaps be noted again that Solander did not complete his manuscript descriptions of the genus, and this accounts for the number of repetitions and blank labels found in the *Murex* drawer of the collection. It appears that an unknown worker commenced labelling as many shells as he could from the available literature, after which Solander would give his final judgment, naming and describing any species that did not agree with those already in the *Systema Naturae*. Thus the three separate species *monodon*, *adustus* and *torrefactus*, all attributed by the helper to the Linnean *M. ramosus*, would have certainly been described as new when critically examined by Solander.

Bullaria botanica Hedley . . . *Bulla ampulla* var.

The presence of this species, probably from Botany Bay, has already been mentioned (p. 99), and was formerly known as *Bulla australis*, a suitable but preoccupied name used by Gray (1825, p. 408) when describing specimens collected by Captain King, during his survey of the coast of Australia from 1817–1822.

<i>Hydatina physis</i> (Linné)	.	.	.	<i>Bulla</i> ***
<i>Conus anemone</i> Lamarck	.	.	.	— — —
<i>Conus catus</i> Bruguière	.	.	.	— — —
<i>Conus coronatus</i> Gmelin	.	.	.	<i>Conus stercus muscarum</i> .
<i>Conus distans</i> Bruguière	.	.	.	<i>Conus distans</i> Sol. MSS.

C. distans is another example of an original Solander name taken from the *Portland Catalogue* (Lot 1450), or from named specimens purchased from Humphrey. Localized specimens in the British Museum collections show the range of the species to be North Australia to Tahiti, but Bruguière gave the type locality New Zealand, and was followed in this by Dillwyn (1817, p. 389), and Tomlin (1937, p. 241). No species of *Conus* have been found to occur in New Zealand.

Conus eburneus Bruguière . . . *Conus glaucus*.
Nova Cambria.

There are twenty specimens of *C. eburneus* in all stages of growth in the collection, many with the periostracum still preserved *in situ*. A further series of *Conus*, all labelled Nova Cambria, are listed below with the specific names only :

C. ebraeus Linné
C. figulinus Linné
C. flavidus Lamarck
C. generalis Linné
C. lividus Bruguière
C. quercinus [Humphrey]
C. nussatella Linné

C. litteratus Linné
C. magus Linné
C. marmoreus Linné
C. pulicarius Bruguière
C. textile Linné
C. virgo Linné
C. vermiculatus Lamarck

Conus quercinus is an example of part of a Martini trinomial name introduced into the binomial nomenclature by Solander. The *Conus Lignum Quercinum* of Martini (2, p. 299, f. 657, 1773) was referred to by Solander in his manuscript description of *C. quercinus*, followed by the initials M. C. P., and thus it appears for the first time in the *Portland Catalogue* in 1786 (Lot 1501), *Conus quercinus* S. Martini, Vol. II, 657), and should therefore be attributed to Humphrey rather than to Bruguière, who next published the name in 1792 (p. 681). Dautzenburg (1937, p. 206) places Bruguière (1792) as the first publisher of the binomial name in his ninety-five references to *C. quercinus* in the literature from 1742 to 1933, but this exhaustive list does not include the earlier Portland entry 1501, although *C. quercinus* Solander is quoted from Dillwyn (1817, p. 394) where it was duly recorded.

Although probably part of Solander's original material, no type status is claimed for the large specimen of *C. quercinus* in the Banks collection, for it bears no label beyond a scrap of paper marked N.C. (Nova Cambria), and the initials J. B. do not occur in Solander's original description.

NEW GUINEA TO JAVA

Although there is little definite proof that the following miscellaneous Indonesian species were actually gathered on the return voyage of the "Endeavour," there appears to have been ample opportunity for collecting at Savu, Batavia and Prince's Island, in spite of the intermittent bouts of fever and sickness suffered by Banks and Solander. No specific mention of shells was made by Banks in his *Journal*, but Solander mentions a few living molluscs in the Java section of his manuscript list of animals observed during Cook's first voyage, notably *Cypraea tigris* L. of which a fully grown specimen is in the Banks collection, clearly seen in the complete drawer of *Cypraea* (see fig. 1).

<i>Mytilus smaragdinus</i> Linné . . .	— — —
<i>Chlamys tigris</i> (Lamarck) . . .	— — —
<i>Codakia punctata</i> (Linné) . . .	<i>Venus punctata</i> L.
<i>Chione marica</i> (Linné) . . .	<i>Venus marica</i> .
<i>Terebellum subulatum</i> Lamarck . . .	<i>Bulla terebellum</i> .
<i>Erronea caurica</i> (Linné) . . .	Maldives & Guinea.
<i>Cypraea tigris</i> Linné . . .	Java Sol. MSS.
<i>Colubraria distortus</i> Schubert & Wagner . . .	— — —
<i>Colubraria testaceus</i> Mörch . . .	— — —
<i>Thais margariticola</i> (Broderip) . . .	New Guinea.
<i>Murex capusinus</i> Lamarck . . .	— — —
<i>Turris cinguliferus</i> (Lamarck) . . .	<i>Murex turris</i> Babylonicus.

<i>Turris citharella</i> (Lamarck)	.	.	.	<i>Buccinum cithara.</i>
<i>Turris javanus</i> (Linné)	.	.	.	<i>Murex Javanus.</i>
<i>Turris tigrina</i> (Lamarck)	.	.	.	<i>Murex Turris Babylonicus.</i>
<i>Turris tornata</i> (Dillwyn)	.	.	.	<i>Murex.</i>
<i>Alys naucum</i> (Linné)	.	.	.	<i>Bulla naucum</i> L.
<i>Conus terebra</i> Linné	.	.	.	— — —
<i>Conus varius</i> Linné	.	.	.	— — —
<i>Conus musicus</i> Bruguière	.	.	.	<i>Conus * * *</i>
<i>Conus imperialis</i> Linné	.	.	.	<i>Conus corona imperialis.</i>
				Oceano pacifico. J.B., D.S.

DESCRIPTIVE CATALOGUE.—PART II

Specimens given to Banks from various localities up to the year 1782

I. SHELLS FROM BRITISH COLUMBIA, NEWFOUNDLAND, AND THE ATLANTIC COAST OF THE UNITED STATES OF AMERICA.

(a) British Columbia (Vancouver Island).

Nucella lamellosa cymica (Dall).

Nucella canaliculata (Duclos).

Euthria dira (Reeve).

Pteroytis foliatus (Gmelin).

These four typical species were undoubtedly brought back from Cook's third voyage (1776-1780), collected during the stay of the "Discovery" and "Resolution" in Nootka Sound, from 29th March to 26th April, 1778. *P. foliatus* is of particular interest, for it appeared frequently in the early literature and sale catalogues. Cook (1778, 2, p. 299) briefly described the molluscs of Nootka, where mention is made of "a curious *murex*, rugged wilks, and a snail, all which are probably peculiar to this place". It was first figured by Martyn in 1784 (vol. 2, pl. 66) as *Purpura foliata* with the locality King George's Sound, the name chosen by Cook before adopting the native name of Nootka. The species appears several times in the *Portland Catalogue* of 1786, notably in Lot 1848, where it is referred to as "the foliated *Purpura*, a new species from the N.W. Coast of America", and in Lot 3036, with the full locality "King George's Sound, on the N.W. Coast of America".

Although the species was clearly described by Gmelin in 1791 (p. 3529, 174), it still appeared in the catalogue of the Leverian Museum in 1806 as "a scarce triplex from Nootka Sound (Lot 196), and the "foliated triplex, Nootka Sound" (Lot 2009). The two specimens of *P. foliatus* in the Banks collection were obviously collected alive, for the dried animals and opercula are still within the shells.

(b) Newfoundland

Chlamys islandicus (Müller) . . . *Ostrea demissa* Sol. MSS.

Solander described this species in his manuscript as *Ostrea demissa*, later named *Pecten islandicus* by Müller (1776, p. 248), and *Ostrea cinnabarina* by Born (1778, p. 87). Solander added a note to his manuscript saying that the specimen was taken from a cod's maw by J. Banks on the banks of Newfoundland, and as this is the only example of *C. islandicus* in the collection, it is presumed to be the actual shell taken by Banks during his visit to Newfoundland and Labrador in H.M.S. "Niger" from April to November, 1766. Dillwyn (1817, p. 256), who seems to have been unaware of Müller's name, retains the *O. cinnabarina* Born, quoting *O. demissa* Solander MSS. as a synonym, and duly records the information (obviously taken from Solander's manuscript note), that "Sir Joseph Banks procured a specimen from the stomach of a cod on the banks of Newfoundland".

(c) Atlantic Coast of the United States

Venus (Mercenaria) mercenaria Linné . — — —
Connecticut Sol. MSS.

This is the Hard Shell Clam or Quahog of the east coast, and is eaten in quantity in the form of "chowder" from April to September (Rogers, 1951, p. 348). According to various authorities the purple edge of the shell of this species was used by the natives to form their wampum or treaty belts. The Banks specimen lacks the purple coloration, and is the variety *alba* described by Dall.

Modiolus demissus (Dillwyn) . . . *Mytilus demissus* Sol. MSS.
Lectotype. Plate 18, fig. 19. Carolina & Virginia

Dillwyn, *Descriptive Catalogue of Shells (Mytilus)*, p. 314, 1817.

	Length	Height	Thickness
Dimensions of Lectotype	95 mm.	32 mm.	29 mm.

Type locality : Carolina.

This is a straightforward example of a subsequent author's validation of a Solander manuscript name. Dillwyn's description (1817, p. 314) based on Solander's MSS. account, also referred to Lister's excellent figure of a specimen from Carolina (1687, tab. 358).

The species occurs from Virginia to Florida on the Atlantic Coast, and in recent years has been introduced into California on the Pacific Coast (Maxwell Smith, 1940, p. 99 and Keep, 1935, p. 64). Solander's manuscript (reproduced at fig. 18) is marked with the full set of locator initials, and there is little doubt that the examples in the Banks and Portland collections from Carolina were sent by Dr. Alexander Garden the elder (1730?-1791), of Charleston, who is known to have corresponded with Ellis and Solander (Smith, 1821, p. 282 *et seq.*). Those marked M.B. would be specimens brought from Carolina by Mark Catesby and given to Sir Hans Sloane at a much earlier date.

There are actually two specimens of *M. demissus* in the Banks collection; one large, now designated the Lectotype (fig. 19), and one smaller specimen, labelled by the

donor *Salt Marsh Mussel, Pennsylvania*. This was probably sent by John Bartram of Philadelphia who supplied specimens of all kinds to the leading collectors of his day including Linné himself (Wilkins, 1952, p. 252).

2. SHELLS FROM THE CARIBBEAN AND BAHAMA ISLANDS

<i>Modiolus tulipa</i> Lamarck	.	.	.	<i>Mytilus modiolus</i> L. vars. A, B.
<i>Modiolus modiolus</i> (Linné)	.	.	.	<i>Mytilus flavicans</i> Sol. MSS.
<i>Hormomya exustus</i> (Linné)	.	.	.	<i>Mytilus exustus</i> .
<i>Chlamys nodosus</i> (Linné)	.	.	.	— — —
<i>Chlamys ventricosa</i> (Sowerby)	.	.	.	<i>Ostrea</i> ***
<i>Chlamys irradians</i> (Lamarck)	.	.	.	<i>Ostrea</i> ***
<i>Pecten ziczac</i> (Linné)	.	.	.	<i>Ostrea ziczac</i> L.
<i>Lucina edentula</i> (Linné)	.	.	.	<i>Venus edentula</i> L.

It may be of interest to note that, unlike Linné who gave no reference to a figure in his description of *Venus edentula*, Solander quoted Lister, tab. 260, fig. 96 (1687) in his manuscript, noting that examples were in the Portland, Banks and British Museum collections.

This is an instance where two out of the three examples so noted are in existence. The British Museum specimen is in the Sloane collection and is the identical shell figured by Lister. The interior shows the yellow coloration typical of the species and fits over Lister's figure exactly, factors which help to confirm the true identity of Linné's *Venus edentula*, discussed at such length by Hanley (1855, pp. 78-80) and more recently by Dodge (1952, pp. 117-118).

<i>Lucina columbella</i> Lamarck	.	.	.	<i>Venus pensylvanica</i> L. Jamaica.
<i>Lucina pensylvanica</i> (Linné)	.	.	.	<i>Venus pensylvanica</i> . Jamaica, Barbadoes. Antigua, Bahamas.
<i>Codakia orbicularis</i> (Linné)	.	.	.	— — —
<i>Amiantis circinata</i> (Born)	.	.	.	<i>Venus rubescens</i> Sol. MSS. Jamaica.
<i>Amiantis dione</i> (Linné)	.	.	.	<i>Venus dione</i> L.
<i>Macrocallista nimbosa</i> [Humphrey]	.	.	.	<i>Venus nimbosa</i> Sol. MSS.
Lectotype. (Plate 17, fig. 16)	.	.	.	Florida and Antigua.

Catalogue of the Portland Museum, p. 175, Lot 3761, 1786

	Length	Height	Thickness
Dimensions of Lectotype . . .	110 mm.	60 mm.	26 mm.

Type locality: Florida.

<i>Chione granulata</i> (Gmelin)	.	.	.	<i>Venus</i> ***
<i>Chione cancellata</i> (Linné)	.	.	.	<i>Venus cancellata</i> L. Bahamas.
<i>Chione beauli</i> (Recluz)	.	.	.	<i>Venus cancellata</i> L. Bahamas.
<i>Chione grata</i> (Say)	.	.	.	<i>Venus</i> ***

<i>Chione pygmaea</i> (Lamarck)	.	.	.	<i>Venus</i> ***
<i>Chione paphia</i> (Linné)	.	.	.	<i>Venus paphia</i> .
<i>Anomalocardia impressa</i> (Anton)	.	.	.	<i>Venus rostrata</i> Sol. MSS. Jamaica.
<i>Cerithium ferrugineum</i> Say	.	.	.	<i>Murex</i> .
<i>Trivia pediculus</i> (Linné)	.	.	.	<i>Cypraea pediculus</i> .
<i>Cypraea Zebra</i> Linné	.	.	.	<i>Cypraea exanthema</i> .
<i>Cypraea Zebra</i> , Juvenile	.	.	.	<i>Cypraea exanthema et</i> <i>Zebra dicta</i> .

A very full discussion of the *C. exanthema* and *C. Zebra* of Linné was recently published by Dodge (1953, pp. 61-63), from which it appears that the well-known *exanthema* must inevitably give way to the earlier *Zebra*, described by Linné from an immature banded specimen.

<i>Cypraea spurca</i> Linné	.	.	.	<i>Cypraea spurca</i> .
<i>Cymatium pileare</i> (Lamarck)	.	.	.	<i>Murex olearium</i> . Jamaica.
<i>Murex brevifrons</i> Lamarck	.	.	.	<i>Murex ramosus</i> .
<i>Murex florifer arenarius</i> Clench & Pérez	.	.	.	<i>Murex ramosus</i> .
Farfante				
<i>Lathirus infundibulum</i> (Lamarck)	.	.	— — —	
<i>Lathirus ocellatus</i> (Lamarck)	.	.	— — —	
<i>Bullaria ampulla</i> (Linné)	.	.	.	<i>Bulla amygdalus</i> Sol. MSS.
<i>Bullaria solidula</i> (A. Adams)	.	.	.	<i>Bulla amygdalus</i> .
<i>Bullaria occidentalis</i> (A. Adams)	.	.	— — —	
<i>Hydatina undata</i> (Bruguère)	.	.	.	<i>Bulla nitidula</i> Sol. MSS.
<i>Conus regius</i> Gmelin	.	.	.	<i>Conus nebulosa</i> Sol. MSS.
<i>Conus granulatus</i> Linné	.	.	.	<i>Conus granulatus</i> L.
<i>Conus mus</i> Bruguère	.	.	.	— — —

3. SHELLS FROM THE EAST INDIES

(a) Specimens sent to Banks by J. G. Koenig from the Coromandel Coast

<i>Modiolus modiolus</i> (Linné)	.	.	.	<i>Mytilus</i> ***
<i>Septifer bilocularis</i> (Linné)	.	.	.	<i>Mytilus bilocularis</i> . Koenig, Coromandel.
<i>Pinctada vexillum</i> (Reeve)	.	.	— — —	
<i>Chlamys senatoria</i> (Gmelin)	.	.	.	<i>Ostrea pellucens</i> Sol. MSS.
<i>Chlamys tranquebaricus</i> (Gmelin)	.	.	.	<i>Ostrea undata</i> Born.
<i>Chlamys coralinoides</i> D'Orbigny	.	.	— — —	
<i>Chlamys squamosa</i> (Gmelin)	.	.	— — —	
<i>Lima lima</i> (Linné)	.	.	.	<i>Ostrea lima</i> L.
<i>Lioconcha picta</i> (Lamarck)	.	.	.	<i>Venus ornata</i> Sol. MSS. Koenig, Coromandel.
<i>Pitaria albina</i> (Lamarck)	.	.	.	Koenig, Ind. Orient.
<i>Macrocallista textile</i> (Gmelin)	.	.	.	<i>Venus polita</i> Sol. MSS. Koenig, Coromandel.
<i>Macrocallista erycina</i> (Linné)	.	.	.	<i>Venus erycina</i> L.
<i>Sunetta scripta</i> (Linné)	.	.	.	<i>Venus cytherea</i> Sol. MSS.
<i>Meretrix formosa</i> (Sowerby), Juvenile	.	.	.	<i>Venus laeta</i> L.
<i>Meretrix formosa</i> (Sowerby), Juvenile	.	.	.	<i>Venus</i> ***
<i>Paphia rotundata</i> Linné	.	.	.	<i>Venus</i> ***
<i>Laternula plicata</i> (Gray)	.	.	.	<i>Mytilus pellucens</i> Sol. MSS.

(b) East Indian species from other sources

<i>Lithophaga nasuta</i> Philippi . . .	<i>Mytilus lithophagus</i> .
<i>Chlamys imbricatus</i> (Gmelin) . . .	<i>Ostrea pellucens</i> Sol. MSS.
<i>Lioconcha castrensis</i> (Linné) . . .	— — —
<i>Pitar obliquata</i> (Hanley) . . .	— — —
<i>Gafrarium dispar</i> (Dillwyn) . . .	— — —
<i>Gafrarium divaricata</i> (Gmelin) . . .	<i>Venus divaricata</i> ?
<i>Amiantis umbonella</i> (Lamarck) . . .	<i>Venus meretrix</i> .
<i>Amiantis umbonella</i> var <i>nivea</i> Hanley . . .	— — —
<i>Macrocallista maculata</i> (Linné) . . .	— — —
<i>Macrocallista florida</i> (Lamarck) . . .	<i>Venus erycina</i> var.
<i>Macrocallista lilacina</i> (Lamarck) . . .	<i>Venus erycina</i> var.
<i>Sunetta solanderii</i> Gray . . .	<i>Venus</i> ***
<i>Sunetta contempta</i> Smith . . .	<i>Venus cythereaea</i> Sol. MSS. Madras.
<i>Sunetta meröe</i> (Linné) . . .	<i>Venus meröe</i> L. Fort St. George.
<i>Meretrix casta</i> (Gmelin) . . .	<i>Venus crassa</i> Sol. MSS.
<i>Meretrix ponderosa</i> (Philippi) . . .	<i>Venus nitida</i> Sol. MSS.
<i>Antigona listeri</i> (Gray) . . .	<i>Venus puerpera</i> L. Suratte, Siam.
<i>Chione opima</i> (Gmelin) . . .	— — —
<i>Timoclea cochinchensis</i> (Sowerby) . . .	<i>Venus pectunculus</i> Sol. MSS. Madras, Pegu, etc.
<i>Paphia literata</i> (Linné) . . .	<i>Venus literata</i> L. Pegu.
<i>Paphia geographica</i> (Gmelin) . . .	<i>Venus</i> ***
<i>Paphia punicea</i> (Deshayes) . . .	<i>Venus</i> ***
<i>Asaphis deflorata</i> (Linné) . . .	<i>Venus deflorata</i> vars. A, B, C, D. Pegu, Suratte, Malacca.
<i>Cypraea (Erosaria) turdus</i> Linné . . .	— — —
<i>Cypraea (Erosaria) ocellata</i> Linné . . .	— — —
<i>Cypraea (Palmadusta) undata</i> Linné . . .	<i>Cypraea undata</i> .
<i>Cymatium cynocephalus</i> (Lamarck) . . .	<i>Murex pyrum</i> .
<i>Cymatium retusum</i> (Lamarck) . . .	<i>Murex pyrum</i> .
<i>Bursa crumena</i> (Lamarck) . . .	— — —
<i>Ficus ficus</i> (Linné) . . .	<i>Bulla ficus</i> .
<i>Murex rufus</i> Lamarck . . .	<i>Murex ramosus</i> L.
<i>Atys cylindrica</i> (Hebling) . . .	— — —
<i>Conus amadis</i> Gmelin . . .	— — —

4. SHELLS FROM WEST AFRICA (CAPE VERDE ISLANDS AND GUINEA COAST)

Smeathman, the botanist and entomologist, has already been mentioned among the contributors to the Banks collection (p. 89), and there is little doubt that some of the West African species listed below were collected during his employment by Banks and others in 1771.

<i>Cardita ajar</i> Bruguière . . .	<i>Venus rugosa</i> L. Coast of Guinea.
<i>Cardium pectinatum</i> Linné . . .	— — —
<i>Chlamys flabellum</i> (Gmelin) . . .	— — —

<i>Pitaria floridella</i> (Gray)	.	.	.	<i>Venus</i> ***
				Coast of Guinea.
<i>Cerithium sowerbyi</i> Kiener	.	.	.	— — —
<i>Cypraea</i> (<i>Zonaria</i>) <i>sanguinolenta</i> Gmelin	.	.	.	<i>Cypraea purpurata</i> Sol. MSS.
<i>Murex megaceras</i> Sowerby	.	.	.	— — —
<i>Conus testudinaria</i> Bruguière	.	.	.	<i>Conus</i> ***
<i>Conus testudinaria</i> Bruguière	.	.	.	<i>Conus</i> St. Jago.

Two specimens of *C. testudinaria* have very clear St. Jago labels tucked inside the shells, and it is likely that these were brought back from Cook's second voyage, collected during the short stay at Port Praya on 10th July, 1772, perhaps by Capt. Furneaux whose name appears in the Solander manuscripts.

5. SPECIMENS FROM THE MEDITERRANEAN

<i>Modiolus adriaticus</i> Lamarck	.	.	.	<i>Mytilus modiolus</i> var. B.
				Turkey.
<i>Lithophaga lithophaga</i> (Linné)	.	.	.	<i>Mytilus lithophagus</i> .
<i>Mytilus pictus</i> Born	.	.	.	<i>Mytilus pictus</i> .
<i>Chlamys opercularis</i> (Linné)	.	.	.	<i>Ostrea aspersa</i> Sol. MSS.
var. <i>Audouini</i> Payraudeau				Mare Neopolitano. Sir William Hamilton.
<i>Chlamys opercularis</i> (Linné)	.	.	.	Mediterranean.
var. <i>subrufus</i> Turton				
<i>Chlamys opercularis</i> (Linné)	.	.	.	<i>Ostrea arguta</i> Sol. MSS.
<i>Chlamys hyalina</i> (Poli)	.	.	.	<i>Ostrea glabra</i> .
<i>Chlamys sulcatus</i> (Born)	.	.	.	<i>Ostrea glabra</i> .
<i>Chlamys flexuosus</i> (Poli)	.	.	.	— — —
<i>Lima lima</i> (Linné)	.	.	.	<i>Ostrea lima</i> .
<i>Lima inflata</i> Lamarck	.	.	.	<i>Ostrea bullata</i> .
<i>Lucina pecten</i> Lamarck	.	.	.	<i>Venus striatella</i> .
<i>Macrocallista chione</i> (Linné), Juvenile	.	.	.	<i>Venus</i> ***
<i>Venus striatula</i> Da Costa	.	.	.	<i>Venus casina</i> L.
				Gibraltar and Tangier.
<i>Paphia aurea</i> (Gmelin)	.	.	.	<i>Venus nebulosa</i> Sol. MSS vars. A, B.
<i>Corbicula fluminalis</i> (Müll)	.	.	.	<i>Venus fluminalis</i> .
				Euphrates.
<i>Cypraea</i> (<i>Zonaria</i>) <i>pyrum</i> Gmelin	.	.	.	<i>Cypraea ochracea</i> Sol. MSS.

6. BRITISH SPECIES, MAINLY FROM WEYMOUTH, DORSET

There are comparatively few British species in the Banks collection, but even these are of interest, for most of them were given to him by the Duchess of Portland who appears to have collected regularly at Weymouth and passed duplicates on to Humphrey, Pulteney, Pennant, and many other workers on the British species. It is seldom that her name does not occur somewhere in the conchological works of the period. Thomas Pennant dedicated the fourth volume of his *British Zoology* to her in 1777, "as a grateful acknowledgement of the many favours conferred by Her Grace on her most obliged, and most obedient humble servant". Richard Pulteney, some years later, continually refers to the Portland cabinet in his *Dorsetshire Catalogue* (1799), noting many species given to him by the Duchess.

<i>Modiolus adriaticus</i> Lamarck . . .	<i>Mytilus ruber</i> Sol. MSS.
<i>Mytilus edulis</i> Linné . . .	<i>Mytilus edulis</i> with the small crab.

This specimen of *M. edulis* still contains the remains of the small crab (*Pinnotheres* sp.) noted on the label (dated 1780).

<i>Mytilus edulis</i> Linné . . .	<i>Near Deptford.</i>
<i>Musculus discors</i> (Linné) . . .	<i>Mytilus discors testa minor albida.</i> Weymouth and Cornwall.

The last named species is the real Linnean *M. discors*, so frequently confused by eighteenth-century authors with the large *M. impactus* already referred to above (p. 98).

<i>Chlamys opercularis</i> (Linné) . . .	<i>Ostrea glabra.</i> Anglia.
<i>Chlamys tigrinus</i> (Müller) . . .	<i>Ostrea obsoletus</i> Sol. MSS. Anglia.
<i>Cyprina islandica</i> (Linné) . . .	<i>Venus islandica.</i> Weymouth.
<i>Dosinia exoleta</i> (Linné) . . .	<i>Venus lincta</i> Sol. MSS. Anglia, Weymouth.
<i>Venus verrucosa</i> Linné . . .	<i>Venus verrucosa.</i>
<i>Venus casina</i> (Linné) Juvenile . . .	<i>Venus</i> * * *
<i>V. (Timoclea) ovata</i> (Pennant) . . .	<i>Venus crenulata</i> Sol. MSS. Anglia, Weymouth.
<i>V. (Clausinella) fasciata</i> (Da Costa) . . .	<i>Venus</i> * * * Anglia and Ireland.
<i>V. (Chamelea) striatula</i> (Da Costa) . . .	<i>Venus gallina.</i> Weymouth.
<i>Paphia aurea</i> (Gmelin) . . .	<i>Venus nebulosa</i> Sol. MSS. Anglia, Weymouth.
<i>Paphia virginea</i> (Linné) . . .	<i>Venus virginea</i> L. Anglia, Weymouth.
<i>Paphia pullastra</i> (Linné) . . .	<i>Venus decussata</i> vars. A, B. Weymouth.
<i>Paphia decussata</i> (Linné) . . .	<i>V. decussata</i> L. Weymouth.
<i>Irus irus</i> (Linné) . . .	<i>Donax irus</i> Linn. Oceano Anglicano prope. Weymouth.
<i>Hiatella arctica</i> (Linné) . . .	<i>Venus arctica.</i> Anglia, Weymouth.
<i>Hiatella gallicana</i> (Lamarck) . . .	<i>Mytilus rugosus.</i> Weymouth. Duchess of Portland.
<i>Gastrochaena dubia</i> (Pennant) . . .	<i>Mytilus pholadeus</i> Sol. MSS. Weymouth. Duchess of Portland.

The four Banks specimens of *G. dubia*, the *Mya dubia* of Pennant, described in 1777, are in all probability part of the original set collected by the Duchess who was said by Pulteney to have been the first to observe its occurrence in England.

<i>Trivia monacha</i> (da Costa)	.	.	.	<i>Cypraea pediculus</i> . Weymouth.
<i>Trivia arctica</i> (Pulteney)	.	.	.	<i>Cypraea pediculus</i> . Weymouth.

Most of the earlier authors followed Linné in regarding the small British Cowries as varieties of his larger and deeply sulcated *C. pediculus* of the West Indies. Both Pennant (1777, p. 115) and Pulteney (1799, p. 39) retained the Linnean *pediculus*, but the latter accepted Solander's name *arctica* (taken from the *Portland Catalogue*) for the unspotted British form, with the reservation that it might only be a variety in a depauperated state. Solander evidently intended his *C. arctica* to apply to both spotted and unspotted shells, marking his manuscript accordingly (var. A. *testa maculis*, var. B, *testa immaculata*). Montagu (1803, p. 200) followed Pulteney in allowing Solander's *arctica* for the spotless form, but in his *Supplement* of 1808 (p. 88) he reconsidered the matter, choosing the name *europaea* for both spotted and unspotted forms, and saying without hesitation that they were quite different from the deeply sulcated foreign *C. pediculus* L. E. M. da Costa, however, had already called both forms *C. monacha* (1778, p. 33), and this name was given preference to Montagu's *europaea* by Winckworth in his revised list of the British Marine Mollusca (1932), where the spotted and unspotted shells appear as subspecies of *Trivia monacha* (da Costa) (184a, *T. monacha monacha*, 184b, *T. monacha arctica*). Winckworth's decision to separate the two forms was based on the researches of Peile (1925) who found the radulae to be distinct. The later work of Lebour (1933) demonstrated that the veligers of the two forms differed sufficiently to justify the recognition of two distinct species.

In fairness to the earlier authors and collectors who were frequently under the impression that the true *C. pediculus* occurred on European shores, it should be mentioned that dead but fresh-looking shells of this West Indian species are still occasionally seen on the British coast. Quite recently specimens were obtained from a rock-pool at Pembroke. Such occurrences are well-known and can usually be traced to ship's ballast or the discarding of unwanted shell collections.

<i>Neptunea antiqua</i> (Linné)	.	.	.	<i>Murex antiquus</i> .
<i>Sipho gracilis</i> (da Costa)	.	.	.	— — —
<i>Ocenebra erinacea</i> (Linné)	.	.	.	<i>Murex erinaceus</i> .
<i>Hoemina hydatis</i> (Linné)	.	.	.	<i>Bulla</i> ***
<i>Cylindrina cylindracea</i> (Pennant)	.	.	.	<i>Bulla</i> ***
				Weymouth. Duchess of Portland.
<i>Philene aperta</i> (Linné)	.	.	.	Oceano Anglicano.
<i>Scaphander lignaria</i> (Linné)	.	.	.	<i>Bulla lignaria</i> .
				Weymouth. Duchess of Portland.

The presence of *S. lignaria* in the Banks collection (ex. Portland) is a particularly agreeable record with which to terminate this descriptive catalogue; for although the shell had been quite well known to authors since very early times, the proper function of the remarkable gizzard plates does not appear to have been noted until about 1780. A specimen of the gizzard of *S. lignaria* (with a small shell in process of digestion wedged between the plates) was sent to the Duchess of Portland by a

correspondent at Weymouth, and this was in her collection in 1786, appearing as item No. 2219 in the sale catalogue, "A large specimen of *Bulla lignaria*, L. with its stomach or gizzard taken out of it, a late and curious discovery". It was bought by Humphrey on behalf of Isaac Swainson who allowed him to describe it in a paper read before the Linnean Society in 1789, and eventually published in the *Transactions* with some excellent figures in 1794 (vol. 2, p. 15, tab. 2).

Specimens of *S. lignaria* from Weymouth complete with gizzard thereafter became part of Humphrey's stock-in-trade, and were usually priced at one guinea (*vide* Cracherode priced MSS. catalogue c. 1799).

In concluding this account of the Banks shell collection, it must be stated that after such a long interval of time it has been necessary, here and there, to use corroborative evidence from other sources than the collection itself; but only the most reliable evidence has been drawn upon, and supposition has been kept to a minimum. Although a portion of the Banks collection is missing, enough remains to give a fairly comprehensive idea of the contribution to knowledge of the mollusca made by Solander and his contemporaries, during the eventful years of the second half of the eighteenth century.

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8. ACKNOWLEDGMENTS

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EXPLANATION OF PLATES

(With the exception of figure 1, all figures are actual size)

PLATE 14

- FIG. 1. Complete drawer of specimens from the Banks collection, containing *Cypraea* and *Bulla*.
FIG. 2. Banks reversible metal container.
FIG. 3. Original Linnean metal container.



FIG. 1.



FIG. 2.

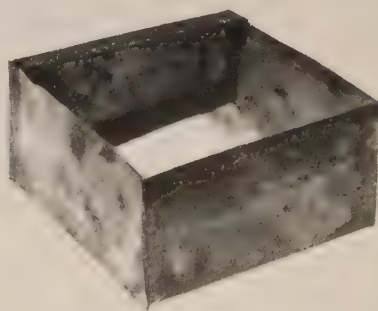


FIG. 3.

PLATE 15

- FIG. 4. *Musculus impactus* (Hermann), New Zealand.
- FIG. 5. Solander's pencilled locality label.
- FIG. 6. Cluster of *M. impactus*, still enclosed in the byssal threads.
- FIG. 7. Manuscript description, finally attributed to *Mytilus discors* L.



FIG. 4.

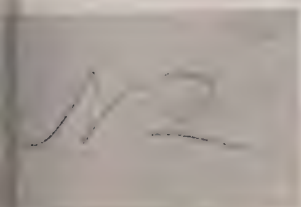


FIG. 5.



FIG. 6.

2602 2603
 1159 2604
 Mytilus subovalis, ^{convexa} antice posticaque
 longitudinaliter sulcata, medio area lata
 lev.
 Mytilus ducis. Linn. Syst. 1159. 261

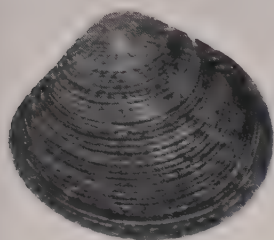
83.

Habitat in Oceano pacifico Novae
 Zelandiae; in Oceano anglicano
 prope Weymouth, in Cornwall.

FIG. 7.

PLATE 16

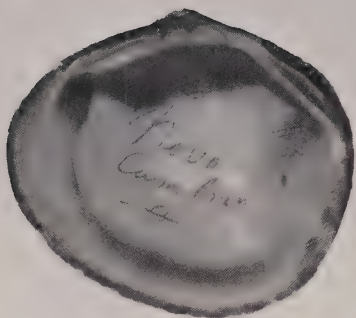
- FIG. 8. *Circe scripta* (L.).
FIG. 9. *Buccinulum multilineum* Powell.
FIG. 10. *Batissa triquetra* Deshayes, marked Nova Cambria.
FIG. 11. *Pyrasmus ebeninus* (Brug.), with *Saxostrea commercialis* attached.
FIG. 12. *Colus colus* (L.).
FIG. 13. *Cymatium chlorostoma* (Lamk.).
FIG. 14. *Pinctada reeveana* (Dunker).
FIG. 15. *Brachidontes hirsutus* (Lamk.).



8



9

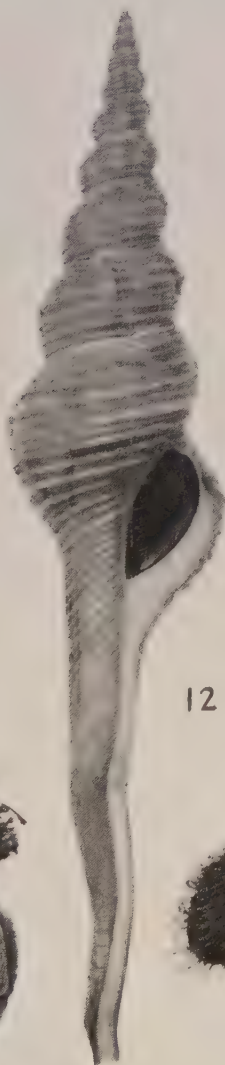


10

Venus #62
scripta B
L



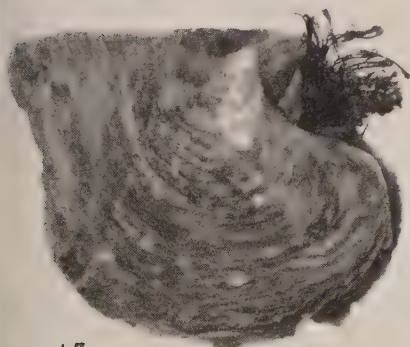
11



12



13



14



15

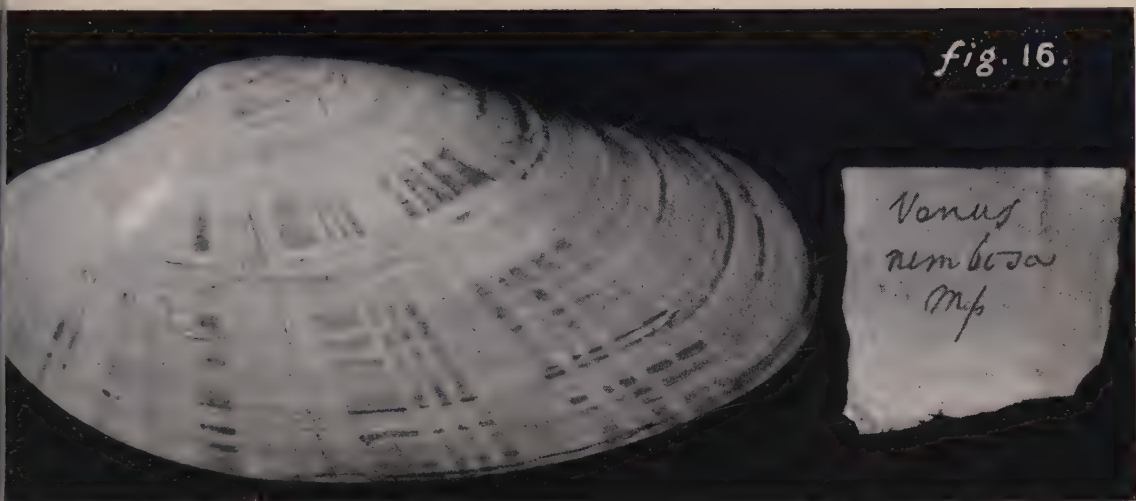
PLATE 17

FIG. 16. Lectotype of *Macrocallista nimbosa* [Humphrey], with Solander's label.

FIG. 16*a, b*. Smaller specimen of *M. nimbosa* marked Antigua, W.I.

FIG. 17. Manuscript description of *Venus nimbosa*.

fig. 16.



Venus
umbosa
Mp

147-148

umbosa

Venus oblongata Lewis radiata, ang
oblongo acuto carinato, valva plana
uscula, marginibus integerrimis,
dentibus cuneatis

M.C.B.

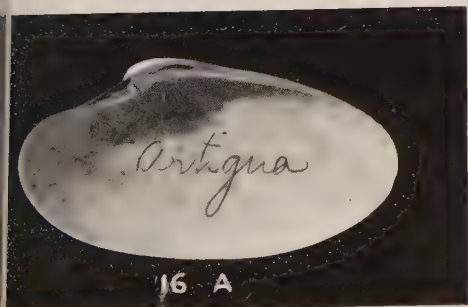
P.B.

M.B.

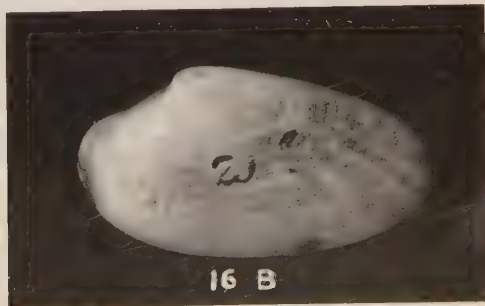
146.

Habitat in Oceano Americano
Florida in allevento: Antigua

FIG. 17



16 A



16 B

PLATE 18

FIG. 18. Solander's manuscript description of *Mytilus demissus*, with full set of locator initials.

FIG. 19. Lectotype of *Modiolus demissus* (Dillwyn), with Solander label.

FIG. 20a, b, c. *Anomalocardia flexuosa* (L), with the *Venus flexuosa* label altered to *Phryne* L.

dentibus Mytilus oblongis longitudinaliter
striatis: striis crassis, valvis interne
lanceolatis basi rotundatis approxi-
matis

М С Б

95

113

Herb. unib. t. 388. p. 196. (male)

97.

Halibut in Oceano America Sept.
Tentaculatus: Virginia. Carolina

FIG. 18.

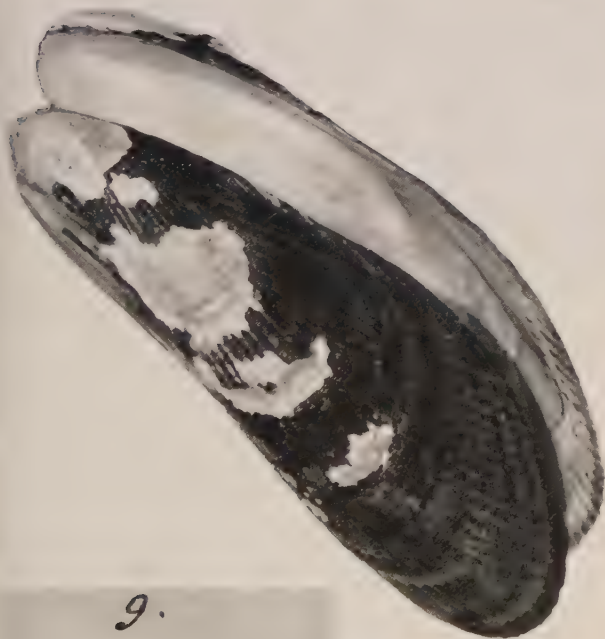


FIG. 19.

9.

My dear
dear friend

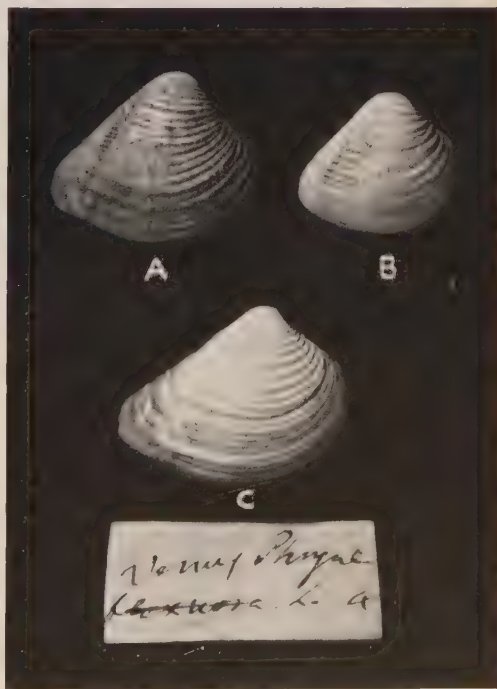


FIG. 20.

PLATE 19

FIG. 21. Solander's manuscript description of *Venus rigida*.

FIG. 22. Manuscript label found in the container.

FIG. 23-24. Lectotype of *Ventricola rigida* (Dillwyn), left valve marked with the type locality Rio de Janeiro.

134. & 135. *cardata* *gibba*
rigida *VENUS subrotunda*, longitudinaliter
 absolute striata, porci transversaliter
 membranacei reflexi, marginibus
 crenatis, ano ^{sub}reniformi.

MCB
 972
 M6

Lectunculus variegatus. Litt. Gench. +
286 f. 123

III

Habitat in Oceano Brasiliensi.

FIG. 21.

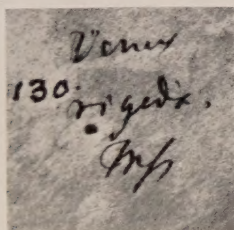


FIG. 22.



FIG. 23.



FIG. 24.

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